

How is Urban Green Infrastructure integrated into the Urban Agenda of the EU and how did the UA enhance the institutionalisation of the discourse of UGI?

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**Connecting the Urban Agenda of the EU and Urban Green
Infrastructure**

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Abstract

This thesis aims to give an overview over the discourse of Green Infrastructure in urban areas at a European level. The Urban Agenda of the EU aims to support urban areas and cities to deal with urban issues by enhancing their standing within EU legislations. The concept of Green Infrastructure in urban areas, a solution that can cover a variety of issues, could be expected to be part of the process. This thesis aims at identifying how well it is incorporated into the Urban Agenda. Additionally, the aim is to identify whether the Urban Agenda had an influence on the discourse of Green Infrastructure and enhanced its further institutionalisation.

Keywords:

Green Infrastructure; Urban Agenda; Urban Areas; EU; Urban Green Infrastructure

Colophon

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Table of abbreviations

C3S.....	<i>Copernicus Climate Change Service</i>
CRVA.....	<i>Climate Risk and Vulnerability Assessment</i>
DG ENV.....	<i>Directorate-General for Environment</i>
EC.....	<i>European Commission</i>
EIB.....	<i>European Investment Bank,</i>
ESF.....	<i>European Social Fund</i>
ESPON.....	<i>European Observation Network for Territorial Development and Cohesion</i>
EUKN.....	<i>European Urban Knowledge Network</i>
GI.....	<i>Green Infrastructure</i>
IPCC.....	<i>Intergovernmental Panel on Climate Change</i>
NBS.....	<i>Natur-Based Solutions</i>
NGOs.....	<i>Non-governmental organization</i>
PAA.....	<i>Policy Arrangement Approach</i>
SEA.....	<i>Strategic Environmental Assessment</i>
TEN-G.....	<i>Trans-European Network for Green Infrastructure</i>
UA.....	<i>Urban Agenda for the EU</i>
UGI.....	<i>Urban Green Infrastructure</i>
URBACT.....	<i>Urban Development network programme</i>
WHO.....	<i>World Health Organization</i>

1. Introduction

We currently live in a time where climate change is considered one of the biggest threats to humanity and our planet. According to the last Synthesis Report of the IPCC (Intergovernmental Panel on Climate Change) in 2014, major changes observed since 1850 include the warming of both atmosphere and ocean, diminished ice, and snow as well as a rise of the sea level. These changes have already caused a multitude of impacts on human and natural systems all over the world. Especially observable are extreme events, such as increased heat waves and increased events of heavy precipitation as well as droughts (The Intergovernmental Panel on Climate Change, 2014). It is very likely that this trend will continue in the future, however, the experiences will most likely differ depending on the local or regional circumstances. In addition to these already noticeable impacts on human and natural systems that are expected to increase, scientists predict the creation of new risks. Europe for example is predicted to experience increased damages from coastal and river flooding, increased damages from wildfires and extreme heat events as well as increased water restrictions (The Intergovernmental Panel on Climate Change, 2014). At the same time, these risks will most likely have significant impacts on human health, ranging from exacerbation of already existing health problems to impairment of common human activities, such as working outdoors or growing food (The Intergovernmental Panel on Climate Change, 2014).

A large driver for the increase of these developments is the rapid growth of the human population (Grimmond, 2007). Most of these humans, especially in Europe, live in cities or urban areas (Grimmond, 2007); (Climate Adaption Partnership, 2018a). According to Grimmond (2007), local impacts can have powerful effects on the inhabitants, even more than climate change at global scale. Urban Areas are projected to be especially at risk for Climate Change impacts, in particular regarding the impacts on human health and wellbeing. The IPCC names “risks for people, assets, economies and ecosystems, including risks from heat stress, storms and extreme precipitation, inland and coastal flooding, landslides, air pollution, drought, water scarcity, sea level rise and storm surges” (The Intergovernmental Panel on Climate Change, 2014, p. 15) to be very likely to increase in urban areas. While urban areas are partly already suffering from several impacts, they are also a major contributor to climate change, for example through emissions of carbon dioxide (Grimmond, 2007); (McCarthy, Best, & Betts, 2010).

Nonetheless, there are positive developments as well. As Castán Broto summarizes in 2017, cities and urban areas are more and more recognized “as *strategic arenas for climate change action*” (Castán Broto, 2017, p. 1). A number of international agreements, such as the 2015 Paris Agreement for Climate Action, the 2015 Sustainability Goals or the New Urban Agenda from 2016, all agree that there are existing possibilities within cities and urban areas for climate change adaptation and mitigation (Castán Broto, 2017).

Additionally, Castán Broto describes a noticeable shift in government while dealing with climate change. More and more actors get involved in the topic, multiple forms of governance evolve. Many of these include hybrid arrangements of actors from different sectors, such as business or the public (Castán Broto, 2017). This shows a development that conforms Leroy and Arts’ findings regarding institutional dynamics (Arts & Leroy, 2006).

Leroy and Arts describe a number of changes that occurred over the last decades. While Leroy and Arts are mainly focusing on environmental policies, which is the main field to tackle Climate Change (The Intergovernmental Panel on Climate Change, 2014); (van Oijstaeijen, van Passel, & Cools, 2020), these changes are most likely to have occurred

within other sectors as well. The most notable development is a discursive turn, which has led policy fields to link together. This linking has not only opened up the framing of environmental problems to other fields or sectors, such as agriculture or technology, but also the responsibility for solutions. Additionally, to becoming a multi-**sector** field, environmental policies are becoming a multi-**actor** field. Roles and coalitions have been renewed and reformed. New participatory approaches have been observed, as well as a multi-**level** character (Arts & Leroy, 2006). Environmental issues are therefore becoming more and more omnipresent and institutionalised. To better understand and interpret these changes, actors of the field of policy analysis followed this discursive turn. Institutional theory, for example, expanded its range with the introduction of discursive institutionalism, and new concepts of policy analysis such as the Policy Arrangements Approach (Arts & Leroy, 2006; Schmidt, 2008).

Concerning climate change adaptation and mitigation there is a broad spectrum of solutions available. One of these solutions is Green Infrastructure (GI), especially in Urban Areas, resulting in Urban Green Infrastructure (UGI). Green Infrastructure is a relatively new term and discourse (ESPON, 2018). Currently no official definition of Green Infrastructure exists, leading to multiple definitions throughout academic literature. A widely used definition is the working definition published by the European Commission in 2013 which defines Green Infrastructure as *“a strategically planned network of natural and semi-natural areas with other environmental features designed and managed to deliver a wide range of ecosystem services. It incorporates green spaces (or blue if aquatic ecosystems are concerned) and other physical features in terrestrial (including coastal) and marine areas. On land, GI is present in rural and urban settings”* (European Commission, 2013, p. 3). Examples of Green Infrastructure in Urban Areas include green roofs, urban forests, public parks and community gardens (van Oijstaeijen et al., 2020).

While there is growing academic interest in UGI, the implementation of this infrastructure is still lacking. Reasons for this are diverse, for example path dependency, fragmented responsibilities, lack of funding and knowledge (mostly concerning benefits, costs and impact) and others (van Oijstaeijen et al., 2020).

To help raise the implementation rates of UGI van Oijstaeijen et al. suggest that urban governance, especially their budgeting processes and structures need to be rethought. Additionally, within the 2014 report the IPCC suggest that improving institutions can help with climate change mitigation and adaptation (The Intergovernmental Panel on Climate Change, 2014). Therefore, to boost the implementation of Urban Green Infrastructure the institutionalisation of its discourse needs to be enhanced.

According to the IPCC, climate change adaptation and mitigation cannot be achieved by individuals working independently. To increase effectiveness, it is advised to cooperate across levels, ranging from smaller scales, the individual, to international cooperation (The Intergovernmental Panel on Climate Change, 2014). The European Union has produced a multitude of programs that show its capacity for international and inter-level cooperation, such as Horizon 2020, the ESF or Interreg. To focus more on the issues specific to cities and urban areas, the EU launched the Urban Agenda (UA) for the EU in 2016. It is aimed, inter alia, to address key urban challenges such as climate change and the environment (European Commission, 2016). The intention of the Urban Agenda is stated as to not create anything new but to improve existing regulations, funding and knowledge (EU Ministers Responsible for Urban Matters, 2016). Actors from different levels, backgrounds and nations

are brought together to discuss certain urban themes and to create actions for change, for example in EU legislations.

Therefore, the Urban Agenda presents an opportunity to exchange knowledge concerning a variety of topics. This could include the previously mentioned Urban Green Infrastructure as part of Climate Adaptation. The aim of the Urban Agenda is to improve regulation, knowledge, and funding. This also presents an opportunity to strengthen the standing of certain topics, ideas, or discourses, such as Urban Green Infrastructure and assist in mainstreaming and institutionalising them.

1.1. Research Problem Statement

Climate change is universally considered a threat to humanity and the planet. Mitigation and adaptation to climate change are deemed important tasks (The Intergovernmental Panel on Climate Change, 2014). Worldwide, actors are looking for sustainable solutions and for ways to implement these. Green Infrastructure, as one possible solution, is seen as an holistic approach that involves a variety of functions, benefits and opportunities, making it a more sustainable solution than the traditional grey infrastructure (Ahern, 2007; Andersson et al., 2014; Hansen & Pauleit, 2014). Due to its broad nature the concept of Green Infrastructure is quite elusive (Hansen & Pauleit, 2014). Naturally, a new discourse concerning Green Infrastructure arose (Ahern, 2007; Hansen & Pauleit, 2014; Maes et al., 2015; Pauleit, Hansen, van Lierop, Rall, & Rolf, 2019; Snäll, Lehtomäki, Arponen, Elith, & Moilanen, 2016; van Oijstaeijen et al., 2020). While academic literature about green infrastructure is growing in general, literature regarding the general implementation of GI projects and the mainstreaming of the concept is still lacking (Hansen & Pauleit, 2014).

In Europe, the European Union is promoting the use of Green Infrastructure among different spatial levels (Hansen & Pauleit, 2014; Snäll et al., 2016). However, for the EU, Climate change adaptation and mitigation are just a few tasks of many (European Union, 2020). While the EU does not have formal competence for urban affairs, a variety of issues within EU competence are manifesting themselves in cities and urban areas. The EU has influenced spatial development for years, e.g. via development policies and its funds (Umweltbundesamt, 2015). In light of the ever-growing urbanisation of Europe, the development of cities and urban areas will have a major impact on the future of the European Union and its citizens. Therefore, the EU saw the need to create an Urban Agenda for the EU that allows Urban Authorities to get involved in improving regulation, funding and knowledge, to unlock the full potential of European Urban Areas (EU Ministers Responsible for Urban Matters, 2016).

Such a project can be expected to have widespread impacts that go beyond the simple improvement of regulations, funds, and knowledge. These potential impacts, however, are currently unclear. Especially regarding the discourse of Urban Green Infrastructure it is currently unclear whether the Urban Agenda has actually contributed to the further institutionalisation of its discourse.

1.2. Research aim and research question

The Urban Agenda is an attempt by the European Union to bring together a variety of actors from different levels and policy sectors. To achieve a sustainable, integrated and balanced approach towards urban challenges, all major aspects of urban development should be focused on (EU Ministers Responsible for Urban Matters, 2016). Considering the pressing

issue of climate change, adaptation or mitigation solutions should be expected to be part of this focus. Within its main document the Urban Agenda states a number of priority themes, naming, inter alia, “*Climate adaptation (including green infrastructure solutions)*” (EU Ministers Responsible for Urban Matters, 2016, p. 7).

This leads to the question, how well the concept of Green Infrastructure is actually incorporated into the Urban Agenda.

The scientific discourse of Green Infrastructure consists of a variety of approaches. However, it seems that it is lacking in sectors that address the implementation of Green Infrastructure projects as a mainstream tool (Hansen & Pauleit, 2014). As a relatively new concept and discourse, its institutionalisation into mainstream politics seems to not have made much progress yet. Still, the will for its institutionalisation is noticeable. With the Urban Agenda of the EU a variety of actors come together, a variety of actions are proposed to achieve change within EU cities and urban areas. As Urban Green Infrastructure is an issue in urban areas and cities, it leads to the questions whether and if so, how the Urban Agenda could affect the discourse of UGI, especially concerning its further institutionalisation.

Overall, the following set of research question and sub-questions was chosen:

- How well is the concept of UGI integrated into the UA & how did the UA enhance the institutionalisation of the new discourse of UGI?
 - What is UGI?
 - To what extent is UGI integrated in the UA?
 - What is proposed by the UA to further institutionalise the discourse of UGI?

1.3. Scientific and societal relevance

Climate change adaptation and mitigation are important tasks that can and should be universally addressed. Solutions can be found in all major sectors, every level has opportunities (The Intergovernmental Panel on Climate Change, 2014).

In the field of spatial planning, Green Infrastructure is a possible solution that is growing in popularity (Hansen & Pauleit, 2014). The European Union supports the use of Green Infrastructure in territorial development and spatial planning, demonstrated by the launch of the Green Infrastructure Strategy in 2013 by the European Commission (European Commission, 2013). However, the implementation for Green Infrastructure is mostly the responsibility of the local level, a level where the EU does not have formal competence (Umweltbundesamt, 2015). Despite this, the importance of the local level regarding climate adaptation and mitigation is recognised at an international level. The IPCC for instance highlights the key role institutional dimensions play in the transition from the planning to the implementation of climate adaptation. Examples for an institutional approach to climate adaptation given by the IPCC are inter alia laws and regulations (The Intergovernmental Panel on Climate Change, 2014).

The term Green Infrastructure has already been included in some legislations, national as well as local. Yet, its implementation remains slow (Dhakal & Chevalier, 2017). Within scientific and academic literature papers addressing the implementation of Green Infrastructure and the barriers hindering can be found. However, not a lot of literature concerning the institutionalisation of the general discourse of Green Infrastructure, especially in Europe, is currently available. Therefore, there seems to be a gap in academic literature

concerning the institutionalisation of the discourse of Green Infrastructure in urban areas. This thesis is aiming to contribute to fill this gap.

Additionally, the Urban Agenda of the EU provides an opportunity for the EU to utilize the potential of cities (Potjer, Hajer, & Pelzer, 2018). A variety of actors with different backgrounds and knowledge are brought together to achieve better knowledge, better legislation and better funding (EU Ministers Responsible for Urban Matters, 2016). As Green Infrastructure is listed within the Urban Agendas main document as part of a priority theme, it should be expected to be included in the Urban Agenda's work. It is therefore important to see how GI is treated within such a setting and to see whether it shows any effect on the institutionalisation of the discourse. If it does, it can work as a sign that the process of mainstreaming sustainable solutions such as GI, or related solutions, in urban areas is on its way. If it does not, it can serve as a sign that more needs to be done to normalise the inclusion of sustainable solutions such as GI in urban areas, and that maybe different ways should be approached. It can also serve as a sign to what standing GI has within the general field of sustainable solutions.

2. Literature review and theoretical framework

Within the following chapter the relevant theories, discourses and concepts of this thesis are introduced. In a first step relevant literature is introduced, setting the stage of this thesis. In a second step the operationalisation of what was introduced will be presented.

2.1 Critical review of academic literature

Academic literature on climate change actions has developed a discourse that sees cities as sites for opportunities. While this discourse has led to a reshaping of the global discourse of climate action, in praxis the development has not progressed far yet (Castán Broto, 2017).

On the basis of studies, a variety of institutional factors were found that, in combination, influence local governments to take on climate actions. These were divided into exogenous and endogenous drivers. Common exogenous drivers are for example the national political context or the availability of data. As common endogenous drivers, political leadership, political culture or institutionalisation were identified (Castán Broto, 2017).

Castán Broto (2017) shows findings that suggest that multi-level governance, along with other factors such as the integration of climate change discourses in decision-making, is an important factor for climate change policy. To achieve multi-level governance, re-thinking of urban governance is needed (Castán Broto, 2017).

Leroy and Arts (2006) describe a political modernisation that is currently occurring, portraying a list of changes within institutional dynamics. These changes include the change towards a more multi-level character of environmental policies, but also towards a more multi-sector, multi-actor and multi-process field. This development is in line with Castán Brotos findings that a more multi-actor approach is needed to achieve more legitimisation and institutionalisation of climate action within a multi-governance context (Castán Broto, 2017).

Within the fields of spatial planning, urban planning and environmental planning the relatively new concept of Green Infrastructure is gaining popularity (Hansen & Pauleit, 2014).

However, it seems that in practice the implementation of Green Infrastructure is still limited. The EU, as one of many institutions, is has shown a will to change that and aims at further institutionalisation of the discourse of GI so that its implementation becomes more mainstream (Schiappacasse & Müller, 2015).

The Urban Agenda of the EU is an approach towards more multi-governance within EU policies (EU Ministers Responsible for Urban Matters, 2016). Furthermore, a variety of themes are addressed within the UA. The Urban Agenda could therefore be described as an arena were different ideas and discourses come together to achieve change. This change is thereby both at a bigger scale (Europe) as well as at the actors' personal institutional scale.

2.1.1. What is discursive institutionalism and where is it positioned?

For as long as political analysis exists, institutional theory was present. Political institutions have long been identified as important for structuring political behaviour (Steinmo, 2008). Over time different types or branches of institutional analysis have developed, known as new-institutionalism or neo-institutionalism (Arts & Leroy, 2006; Thelen, 1999). The most discussed types or branches within new-institutionalist literature are historical institutionalism, rational choice institutionalism and sociological institutionalism (Hall & Taylor, 1996; Steinmo, 2008). Later, discursive institutionalism was added (Schmidt, 2008).

While they all are approaches to analyse institutional development, they all have different approaches and views. A way to differentiate these branches Arts and Leroy simplify a division along two dualities. First, the individual actor's behaviour and how it is structured and formed. Second, the formation of organisational structures and discourse. Leroy and Arts illustrated these two dualities in form of an axis of coordinates (Arts & Leroy, 2006). Each branch gravitates to one end of the following axis.

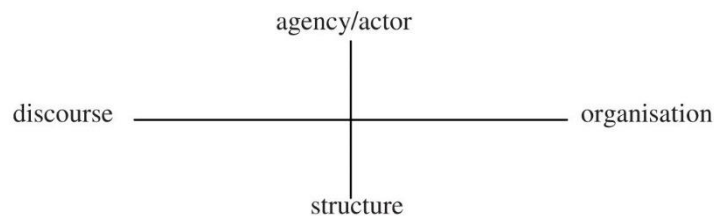


Figure 1: Crossing dualities in social sciences (Arts & Leroy, 2006, p. 8)

Historical institutionalism:

Historical institutionalists are aiming to find out why a certain outcome has occurred or why certain choices were made (Steinmo, 2008).

Historic institutionalism tends to see institutions as persistent and continuing structures that are external to actors (Hall & Taylor, 1996; Schmidt, 2008). As the name could suggest, institutional development is usually seen with historically-based logic of path dependence and unintended consequences (Hall & Taylor, 1996; Schmidt, 2008). This is combined with a point of view where power relations are unequal, where existing institutions give more power to some actors or interest than others (Hall & Taylor, 1996).

Historical institutionalists see the world as complex, where many forces come together.

Kloppenber describes the causal relationship in a way that to understand politics, and its development, institutions need to be understood. These institutions can only be understood in the context of the broader cultural values sustaining them, as well the purposes and ideas of those that created the institutions in the past (James T. Kloppenberg, 1995). Hall & Taylor support this argument by stating the importance of the contribution that factors like ideas can have on political outcomes (Hall & Taylor, 1996).

The relationship between institutions and the behaviour of individuals is less of a focus point in historical institutionalism and conceptualised in relatively broad terms. A reason is stated to be the eclectic nature of historical institutionalism in its use of an calculus and cultural approach (Hall & Taylor, 1996). The calculus approach assumes that individuals behave strategically to achieve their own maximum benefit. Institutions provide actors with information about the potential behaviour of other actors, therefore influencing the actor's behaviour. The cultural approach assumes that actors act rational but less strategic and more according to established routines of behaviour. The individual is deeply embedded within the institutions that provide filters of interpretation of situations and the individual itself, therefore affecting the preferences of actors (Hall & Taylor, 1996).

Nevertheless, overall, it is the institution that structures the behaviour of actors by originating rules and promulgation by formal organisations (Hall & Taylor, 1996).

Along Arts and Leroy's axis of coordinates, historical institutionalism can be placed on the right at organisation (Arts & Leroy, 2006)

Rational Choice Institutionalism:

Rational choice institutionalists are aiming to answer why there can be stability in the outcome of an institution if the actors are not stable, due to e.g. frequent change (Steinmo, 2008).

In rational choice institutionalism the individual actor is assumed to be an rational individualist who is well-informed, knowledgeable and behaving accordingly (Ostrom, 1998; Schmidt, 2008; Steinmo, 2008). This means that the individual actor is calculating the costs and benefits of their choices, based on a fixed set of tastes or preferences (Hall & Taylor, 1996; Steinmo, 2008).

In contrast to historical institutionalism, rational choice institutionalism is purely using a calculus approach to explain the effect institutions have on individual action. This is demonstrated by the assumption that individual behaviour is driven by a strategic calculus. The calculus is affected by the expectation the actor has of other actor's behaviour. This resulting interaction is structured by institutions (Hall & Taylor, 1996).

The view of rational choice institutionalists is described as "*a series of collective action dilemmas*" (Hall & Taylor, 1996, p. 945) or social dilemmas (Ostrom, 1998). They hereby mean instances when collectively sub-optimal outcomes occur due to actors acting to maximize the outcome according to their own preferences (Hall & Taylor, 1996). The best-known example of such a situation is the prisoners' dilemma. Without cooperation between actors this would just continue to go on (Ostrom, 2007). The magnitude of the effects of such behaviour can differ depending on the goods involved, the rules and the participants.

Concerning goods, variations can be found in accessibility and provision. Rules include the definition of boundary rules, but also knowledge about these rules, an understanding and legitimacy of these rules (Ostrom, 2007). Participants' behaviour depends, as mentioned, on their own personal interest (Hall & Taylor, 1996; Ostrom, 1998; Steinmo, 2008).

Institutions are providing structure for the decision-making processes. According to Hall & Taylor (1996), institutions provide information and enforcement mechanisms that reduce uncertainty about the behaviour of others and structure the situation (Hall & Taylor, 1996; Ostrom, 2007). A more complementary behaviour of actors is influenced this way (Hall & Taylor, 1996). Therefore, institutions frame the strategic and calculated behaviour of individuals (Steinmo, 2008).

This leads to the conclusion that **the individual** is behaving strategically to achieve a maximum outcome according to **their** own interests. While they can only assume the strategic behaviour of others, institutions shape these expectations of how others might behave, therefore influencing the individual's behaviour.

Rational choice institutionalists assume that institutions are intentionally created for a specific purpose. Its function and the benefits that come from it are the focus here. Hall and Taylor describe the creation of institutions as voluntary and competitive. They argue that relevant actors agree on institutions and that primarily those institutions survive that provide more benefits to relevant actors than other institutions (Hall & Taylor, 1996).

Rational choice institutionalism can be placed at the top of Leroy & Arts axis of coordinates, at agency/actor.

Sociological Institutionalism:

Sociological institutionalists aim to explain the similarities between institutions around the world, regardless of local differences (Hall & Taylor, 1996).

Sociological institutionalism sees actors as social beings. They are less rational and self-interested than actors in rational choice institutionalism. Instead, they are described to act habitually, influenced by comprehensible and routine processes. Rather than aiming for

maximizing their own interest they rather aim for the appropriate action (March & Olsen, 2009; Steinmo, 2008).

Sociological institutionalism follows a cultural approach. Hall & Taylor describe that institutions are defined broader than in other approaches, not only including formal rules but also cultural aspects, such as moral templates or symbol systems. The conceptual division between institution and cultures is therefore broken down (Hall & Taylor, 1996).

Actors are described to be socialized into institutional roles and internalize the norms that are associated to be appropriate (Hall & Taylor, 1996; March & Olsen, 2009). This way, institutions do not only affect the actors' behaviour concerning certain actions but their overall view of the world, affecting underlying preferences and providing a frame of meaning (Hall & Taylor, 1996; Steinmo, 2008).

Sociological institutionalists argue that institutions are less created for their efficiency. Instead, the aim is to enhance the social legitimacy of the organisation or its participants (Hall & Taylor, 1996). This also reflects the logic of appropriateness that March and Olsen view as a core assumption of this branch (March & Olsen, 2009).

Within Leroy & Arts' axis of coordinates, sociological institutionalism can be placed at the bottom, at structure.

Discursive or cognitive institutionalism:

Discursive institutionalisation is the newest addition of these four branches of new institutionalism (Schmidt, 2008). Scholars within this branch of institutionalism are regarding institutions as "*the solidified outcomes of common knowledge and beliefs*" (Arts & Leroy, 2006). Contrary to the older three institutionalisms, discursive institutionalism sees institutions not only as given, meaning the structures giving context in which agents act, think, and speak, but also as contingent, meaning the results of the agents' actions, words, and thoughts. Institutions are therefore structures that constrain actors and at the same time constructs that are created or changed by the actors. Action in institutions is therefore a process of agents creating and maintaining institutions (Schmidt, 2008).

The list of scholars is quite diverse, leading to a variety of views within discursive institutionalism. The most noticeable division lies in the focus. Some focus more on the **ideas**, what is said within a discourse. Others focus more on the interactive **process** of discourse, involving text, context, structure and agency (Schmidt, 2008).

Those emphasizing ideas look into how ideas of a global scale get translated into local interpretation. Local actors are hereby not simply enacting these ideas as they are, but adapting them according to their own interest (Alasuutari, 2015).

Actors in a discursive institutionalists view portray two abilities. The "*background ideational abilities*" (Schmidt, 2008, p.12) as in the "*ability to act within a given meaning context*" (Schmidt, 2008, p.12), and "*foreground discursive abilities*" (Schmidt, 2008, p.14) as in the ability to change or maintain the institution as well as communicate them to others. This combination characterises the logic of communication, the basis on which agents are able to think and act outside the institution, even while being inside, allowing them to deliberate about the rules while using them and persuading others to change or maintain these institutions (Schmidt, 2008).

Discursive institutionalism can be placed on the left in Leroy & Arts axis, at discourse.

While this thesis is focussing on the Urban Agenda as the arena of action, the interest lies largely on the concept of Urban Green Infrastructure, an idea and its surrounding discourse.

From the previously introduced branches, the last branch, discursive institutionalism, is the one that focusses the most on how ideas and discourses are influencing institutions and institutional change. Therefore, it was chosen as most helpful as a viewpoint for the analysis to answer the research questions. As discursive institutionalism is an approach but not a specific theory that can be used to answer the research questions, an operational theory must be found.

2.1.2. Argumentation of the use of PAA to analyse institutionalisation of the discourse of UGI within UA

To analyse the institutionalisation of the discourse of Urban Green Infrastructure within the Urban Agenda of the EU the choice of theory fell on the Policy Arrangement Approach (PAA).

As mentioned before, the interest lies in the institutionalisation of the discourse of UGI. This aim has led to approaching the research questions from a discursive institutionalists point of view. Now the second interest comes into play, the Europeanisation of urban planning. In 2016 the EU adopted the Urban Agenda for the EU. The Urban Agenda itself will be explained later in chapter 4.

What can be said now is that the UA is a framework that contributes to the shift from government to governance by creating a place where several levels (local, national, international) can work together to tackle urban issues. Its interest does not lie in creating new structures but in modifying existing structures for improvement (EU Ministers Responsible for Urban Matters, 2016).

It can be said that this research is at an intersection where the institutionalisation of the discourse of UGI and the effects that the Urban Agenda could create meet. A suitable theory to analyse this intersection is now needed. Therefore, I translated it into other terms found within the field of institutional or political development. The discourse of UGI can be seen as a policy innovation, as it is a new approach to a solution (Arts, Leroy, & van Tatenhove, 2006). The Urban Agenda for the EU can be translated into political modernisation. Political modernisation is described by Arts et al. as “structural processes of changing interrelations between state, market and civil society, and to new conceptions and practices of governance” (Arts et al., 2006, p. 93). According to Arts and Leroy (2006), this interplay of policy innovation (GI) and political modernisation (UA) can be seen as institutionalisation of policy arrangements. Policy arrangements are described as the temporary stabilisation of the content or substance and the organisation of a particular policy domain, in this case GI (van Tatenhove, Arts, & Leroy, 2000). For the analysis of the institutionalisation of policy arrangements the Policy Arrangements Approach has been developed (Arts & van Tatenhove, 2006).

2.1.3. What is the Policy Arrangements Approach (PAA)?

The policy arrangements approach is aiming to link changes in day-to-day policy practices to structural and broader changes within contemporary society and to understand and analyse change but also stability within policy arrangements.

To capture all these, the PAA consists of four dimensions that help describing and analysing policy processes. These dimensions are the actors, resources, discourse and lastly the rules of the game (Arts et al., 2006). Actors, resources and rules are hereby part of the organisation of policy arrangements, the discourse part of its substance.

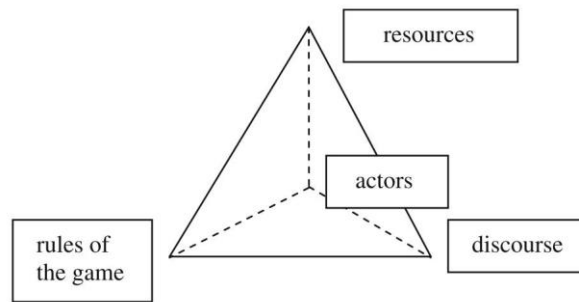


Figure 2: Tetrahedron (Arts et al., 2006, p. 99)

Those four dimensions mentioned can be portrayed in a tetrahedron. This shows their interconnection, meaning that a change in one of the dimensions tends to have an impact on the others, or at least one of them.

Actors are described as the actors and policy coalitions that participate in the policy creation and its surrounding processes (Arts et al., 2006). These can be all types of actors in all forms of relationships from state, market, and civil society.

Resources describe generally things as information, expertise, finances and knowledge. Within the policy arrangement the view lies not only on their contents but most importantly on their distribution upon the actors (Lieverink, 2006).

The rules of the game set the boundaries, possibilities, and constraints for the actors within a certain policy domain. These rules themselves can be divided into two kinds of rules and norms: formal and informal. While formal rules can be laws, plan documents and others, informal rules are more dynamic and defined by the political culture that is present in the policy domain. As the rules of the game are described as an ongoing process they are bound to change over time (Lieverink, 2006).

Discourse describes the views and narratives that belong to the actors involved, therefore describing their norms and values usually concerning a certain subject or topic, for example Green Infrastructure (Lieverink, 2006).

The starting point of the analysis, the dimension with which the analysis is started, has a significantly effect on the analysis, the research question, and the results. This also means that the research question can dictate at which dimension the research begins. For this thesis, the dimension of rules of the game was chosen as the starting point. As mentioned earlier, this research is positioned at an intersection between the interests “discourse of UGI” and “the Urban Agenda of the EU”. While the meeting of the discourse of UGI and the Urban Agenda of the EU also brings together new actors, resources, and discourse, it is the rules that are most prominent in this encounter. As will be explained more in detail later, the Urban Agenda consists of a main document that presents rules for the further work of the Urban Agenda. Within these rules the other dimensions are affected.

2.1.4. The concept of GI as a new discourse

In the last two decades the term Green Infrastructure was introduced into the world of politics and academics and manifested itself. From the first look at it, it could be set into context with other Infrastructures known, e.g., Grey Infrastructure and Blue Infrastructure. The part “infrastructure” implies that there should be some form of “underlying foundation or basic framework” (Webster Dictionary) or an “underlying structure” that is needed for a country, or on a smaller scale city, or economy to function (Webster Dictionary). The colour Green is often associated with nature, therefore hinting at some sort of nature framework or structure.

For the term Green Infrastructure itself there is no widely agreed on definition but a variety of definitions that can be found throughout literature (Wang & Banzhaf, 2018). The seemingly first definition of Green Infrastructure was made by Benedict and McMahon in 2002 where GI was defined as “*an interconnected network of green space that conserves natural ecosystem values and functions and provides associated benefits to human populations*” (Benedict & McMahon, p. 13). Other examples for definitions are made by The Conservation Fund in 2004 that defines GI as “*the interconnected network of natural and semi-natural areas, features and green spaces that support native species, maintain natural ecological processes in rural and urban areas, and contribute to the health and quality of life for human beings*” (Wang et al., 2018, p.758) and two years later in an updated version as “*a strategically planned and managed network of natural lands, working landscapes, and other open spaces that conserves ecosystem values and functions and provides associated benefits to human populations, in order to link GI concept closely to its implementation*” (Wang et al., 2018, p.758-759). Others define GI as a “*strategically planned network of natural and semi-natural areas with other environmental features designed and managed to deliver a wide range of ecosystem services and functions such as water purification, air quality, space for recreation and climate mitigation and adaptation. This network of green (land) and blue (water) spaces can improve environmental conditions and therefore citizens' health and quality of life. It also supports a green economy, creates job opportunities and enhances biodiversity*” (Interreg Central Europe - MaGICLandscapes, 2007-2013). In 2013 the European Commission (EC) published its so-called working definition which defines GI as “*a strategically planned network of natural and semi-natural areas with other environmental features designed and managed to deliver a wide range of ecosystem services. It incorporates green spaces (or blue if aquatic ecosystems are concerned) and other physical features in terrestrial (including coastal) and marine areas. On land, GI is present in rural and urban settings*” (EC, 2013, p. 3).

It is noticeable from these definitions that even though their foci might be slightly different depending on the author and their policy field of origin, for example nature protection or strategic planning, there are some aspects they all have in common. These common aspects therefore seem to portray what could be called the essence of the term Green Infrastructure.

The first aspect is that it is a network, connecting areas, landscapes, green spaces or functions. These networks are often strategically planned, especially in newer definitions. This implies that GI is something man-made and nothing that spontaneously appeared.

The second aspect are the types of areas that are connected. These are in general natural or semi-natural areas. More specifically only those that provide ecosystem services. This implies some sort of benefit, sometimes for the species living there, but most importantly for the human benefit. This includes positive impacts on the human directly, e.g. health by providing clean air, and indirectly in terms of economic benefits. A variety of benefits that are linked to Green Infrastructure are listed in the figure below.

Function	Benefits
Aesthetic	Makes an area characteristic
Land and property values	Links places of living and activities; positive impact on land and properties
Social-psychological	Attractive living environment; social inclusion; sense of community
Education and culture	Understanding and experiencing nature; opportunities for education and training; connectivity between urban and rural areas
Recreational, well-being and health	Nature close to housing; sense of space and nature Tourism/ecotourism; social interaction; improving mental and physical health
Biodiversity/species protection and conservation benefits	Species protection; habitat for species; connecting habitats and guiding species movements
Climate and climate change	Mitigating urban heat island effect; storing floodwater and ameliorating surface water run-off to reduce flooding risk Carbon sequestration; reducing energy use for heating and cooling buildings; encouraging sustainable travel
Water management	Attenuating surface water run-off; fostering groundwater infiltration
Food production and security	Keeping potential for agriculture land; soil development and nutrient cycling; preventing soil erosion

Figure 3: Functions and benefits of Green Infrastructure (Schiappacasse & Müller, 2015, S17)

Following this deduction, it can be agreed when authors like Davies (2017) or Benedict (2002) describe Green Infrastructure as a kind of concept or framework. It can also be agreed to statement as Leiner's (2016) that Green Infrastructure shows relevance for a number of fields, including biodiversity, economic growth, climate change, urban policies and spatial planning. This is mainly possible due to GI's broad character as it touches on various topics. This thesis supports this view on Green Infrastructure as a broader concept which can be implemented via several measures and instruments.

While some academic papers focus on Green Infrastructure as a concept or framework and give definitions of GI, for example (Benedict & McMahon), 2002 or (Wang & Banzhaf, 2018), the majority tends to emphasise specific parts, characteristic or measures of GI. This can be a study about the use of Green Infrastructure in a specific city, for example Detroit (Meerow & Newell, 2017) or the values of GI (Wild, Henneberry, & Gill, 2017). Others use the term Green Space (Haaland & van den Bosch, 2015) or greenspace (Taylor & Hochuli, 2017), sometimes synonym for Green Infrastructure. Others focus more on specific measures or components of GI, for example Nature-Based Solutions (NBS) (Faivre, Fritz, Freitas, Boissezon, & Vandewoestijne, 2017) or Ecosystem-based adaptation (Geneletti & Zardo, 2016). Overall, it is not initially explicit which meaning of Green Infrastructure is meant.

As the interest initiating this research lies on Green Infrastructure in urban areas, the focus of the literature review will focus deeper on GI in urban areas or so called Urban Green Infrastructure (UGI). Due to the increasing importance of urban areas and cities, academic literature tends to emphasise Green Infrastructure, and its accompanying measures, in these areas. Especially in Europe this development seems to be due to the trend of most of

Europe's citizens living in urban areas. This trend is expected to grow since cities are increasingly seen as engines of social innovation and economy (Mamadouh & van Wageningen, 2015). This high attractiveness of cities naturally comes with problems, for example, unemployment, energy transition and climate change. Green Infrastructure is considered important in solving these problems as the multifunctionality of the concept can be helpful, especially in compact areas as cities (Hansen, Olafsson, van der Jagt, Rall, & Pauleit, 2019).

These findings leave us now with two topics literature is focussing on: On one hand the focus on Green Infrastructure in urban areas or Green Urban Infrastructure (UGI) and on the other hand urban areas in general. I will first discuss Urban Green Infrastructure, later the urban area.

In academic literature the term of Urban Green Infrastructure is existent, however, less used. Papers tend to focus on the current situation of green spaces in urban areas (Wüstemann, Kalisch, & Kolbe, 2017) or how components of GI, such as Nature-Based Solutions (NBS), can be integrated into urban areas (Connop et al., 2016). Less focus is placed on the discourse of Urban Green Infrastructure itself and its further institutionalisation.

For the urban area, the Urban Agenda, which will be addressed later in detail, gives an insight into what is seen as current urban problems in Europe and how these can be solved. The Urban Agenda strives to achieve better coherence with policies affecting cities, which, inter alia, includes Green Infrastructure. As the Urban Agenda is relatively new, it is not much of a surprise that critical academic literature is currently lacking on this topic, let alone in linking (Urban) Green Infrastructure with the Urban Agenda of the EU.

To summarise, the discourse of Urban Green Infrastructure of Green Infrastructure in general is quite broad. While academic literature covers a variety of aspects of Green Infrastructure, the overall picture of (Urban) Green Infrastructure can be quite confusing. The term Green Infrastructure is more and more used in different interpretations (Davies & Laforteza, 2017). It is therefore difficult to know what exactly is meant when Green Infrastructure is mentioned, especially within political texts. It seems to be that the interpretation is depending on the actors involved.

2.2 Operationalisation

The following chapter describes the operationalisation of the theory. Firstly, it is described how the presence of Urban Green Infrastructure within the Urban Agenda of the EU is measured. Secondly, it is described how the extend of the contribution of the Urban Agenda of the EU to the further institutionalisation of the discourse of Urban Green Infrastructure is measured.

2.2.1 How to measure whether the discourse of UGI is present in the UA?

To answer the question of to what extend Urban Green Infrastructure is incorporated into the Urban Agenda of the EU it first needs to be established how this can be measured. As just mentioned, what exactly is meant by the term Green Infrastructure can be quite confusing. Therefore, it needs to be made explicit what exactly is measured.

For this research, a hierarchy was developed that shows various degrees of Urban Green Infrastructure. This hierarchy is used to later measure what degree of UGI was present in the Urban Agenda of the EU.

As mentioned before, there is currently no universally agreed on definition of Green Infrastructure or Urban Green Infrastructure. However, a variety of definitions exist within academic literature. In this thesis the following definition is used as a working definition: “strategically planned network of natural and semi-natural areas with other environmental features designed and managed to deliver a wide range of ecosystem services”. (Wang & Banzhaf, 2018, p. 760)

This definition seems to cover the basic common features of most definitions. The Environmental features are, for the most part, usually Nature-based Solutions (NBS). Per my definition for this thesis, only the sum of all these characteristics make up Green Infrastructure. Therefore, I propose a form of hierarchy in this thesis to, at the end, showcase how “well” GI is included in the UA. With this hierarchy I also want to address the importance of wording in Literature and policy documents, as this, especially concerning the theme of Greening, GI, NBS and so on, can be quite confusing and unclear, making it difficult to understand the differences. While the inclusion of NBS in any way is an important step in reaching sustainability goals, they might not be able to perform with their full potential as if they would be in a system of Green Infrastructure.

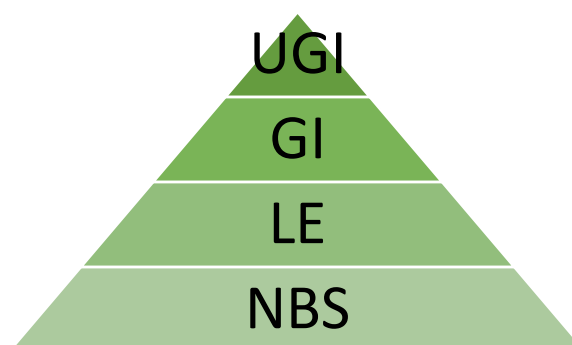


Figure 4: Hierarchy of Urban Green Infrastructure (Own research; based on Hansen & Pauleit, 2014)

- UGI → urban area, network
- GI → network, not specific to urban area
- LE (Linked elements) → connected areas or functions
- NBS → multifunctional green spaces with benefits for humans

NBS:

Nature-based solutions. This implies green spaces which consist of multiple functions and which benefit humans in some way.

Linked elements:

This implies that the green spaces of the previous category are connected in either a physical or functional way, meaning they are not isolated.

GI:

Green infrastructure. This implies that there is a form of matrix present where multifunctional green spaces are connected physically and functionally.

UGI:

Urban Green Infrastructure is here the optimal level of integrity that can show up within the partnerships. It consists of all functions and forms of Green Infrastructure within an urban environment.

This hierarchy is used to assess the outputs of the Urban Agenda to see to what degree Urban Green Infrastructure is present in the Urban Agenda.

2.2.2 To what extent does the UA contribute to further institutionalisation of this discourse?

As mentioned earlier, the dimension at which the tetrahedron is entered has impact on the research. In this thesis the discourse of GI is analysed within the framework of the UA. For this thesis, the dimension of rules of the game was chosen as the starting point. As mentioned before, this research is positioned at an intersection between the research interests “discourse of UGI” and “the Urban Agenda of the EU”. While the meeting of the discourse of UGI and the Urban Agenda of the EU also brings together new actors, resources, and discourse, it is the rules that are most prominent in this encounter. As will be explained more in detail later, the Urban Agenda consists of a main document that presents rules for the further work of the Urban Agenda. Within these rules the other dimensions are affected, as the following figures demonstrates.

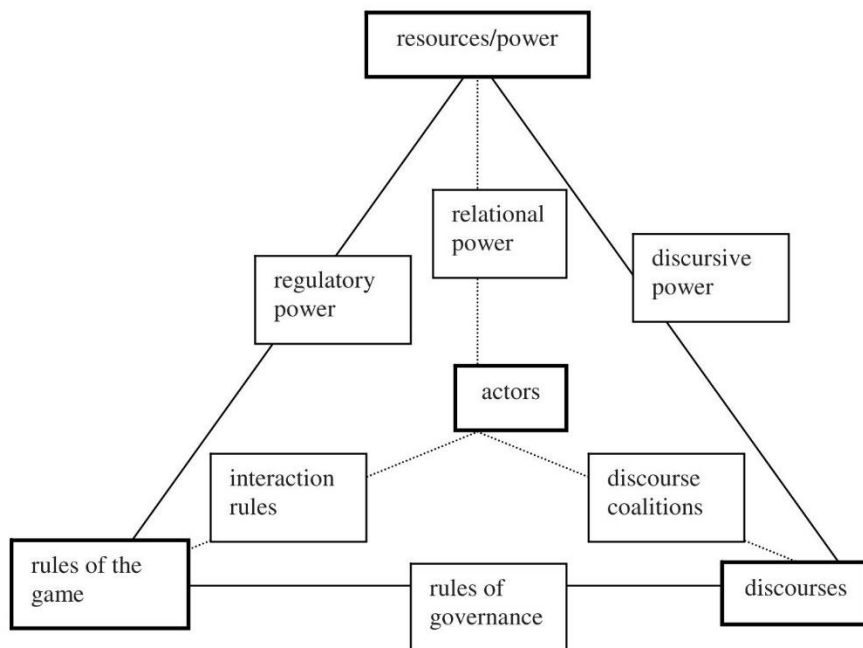


Figure 5: Analytical perspectives of the tetrahedron (Liefverink, 2006, p. 60)

The rules introduced are above all interaction rules, influencing the dimension of actors. Overall, the Urban Agenda creates an arena consisting of certain rules and a new composition of actors. The interest of this research lies on identifying the influence this arena has on the further institutionalisation of the discourse of UGI.

The UA as a framework has set new rules within which a number of actors worked together. This resulted in several outcomes, namely proposed solutions or Actions that are expected to further shape the field of urban policies.

The interest is here less the process of these actors working together and how they came to their results, but on the impacts which the outcomes (the proposed actions) might have on the further institutionalisation of the discourse of UGI. Here, the focus lies on the content of what is proposed in relation to UGI. These can be new rules, new procedures, new policy instruments, changes in resources and new coalitions of actors. A set of indicators to measure the content and their possible effect on the institutionalisation of the discourse of UGI is introduced later in chapter 3.1.2.

3. Methodology

The following chapter explains the methodology used within this thesis.

3.1 Research strategy

The following explains the research strategy of this thesis. First, the selection of cases is described, followed by the analysis of the selected cases.

3.1.1 Selection of cases

This research is a case study, therefore relying on cases. While the UA consists of 12 possible cases (partnerships), this is too many to analyse for this thesis. Therefore, the number of partnerships needs to be reduced. To understand the individual cases, first the basis, the Urban Agenda itself, needs to be understood.

Therefore, in a first step, the Urban Agenda will be briefly described. Next, two cases will be chosen to be analysed in detail.

For a functional research the relevant cases, in this case partnerships, have to be determined. A first glance at the titles and topics of the partnerships gives a first idea which partnerships might be suitable, however, to determine the cases a more in-depth selection needs to be done.

Relevant for the research are two of those partnerships, that are the most in line with the subject of Green Infrastructure. Therefore, in a first step the essential output of each partnership, the Action Plan, undergoes a word count.

The word count is based on the following system to determine how many key words, that relate to GI are present in the Action Plans.

The key words are collected via a two-step process. In the first step, the previously introduced hierarchy of Urban Green Infrastructure is considered. However, this is not enough for a thorough word search. Therefore, in a second step words that are often found in academic literature linked to Green Infrastructure are identified via a word cloud. As some literature was in German, relevant words in both languages were combined later, for example "Umwelt" and "environment".

Using the key words selected before, a word count was conducted on the action plans of each of the 12 partnerships, in chapter 4.1. The goal hereby was to filter out the two Partnerships with the most key words and therefore most relevant regarding GI. These two Partnerships will then be analysed more in depth.

3.1.2 Analysis of cases

After narrowing down the partnerships from 12 to 2, these 2 are analysed in detail. This analysis is done in two steps to answer the two parts of the research questions.

In the first step the outcomes of the two selected cases, their Action Plans, are analysed using the hierarchy of UGI to investigate to what extent the discourse of UGI is present.

In a second step the extent of the contribution to the further institutionalisation of the discourse of UGI is analysed using the Policy Arrangements Approach (PAA).

Additionally, to gather background information regarding connection of the partnership and Green Infrastructure the partners were asked some questions. Due to the limited participation the collected information can only be used as additional information and not as statistically comparable sources. All partners were sent a questionnaire. For Case 1 four were filled out and could be followed up by interviews via phone or videocall. For Case 2 just two questionnaires were filled in.

Extend of presence

To analyse the extent to which UGI is present in the UA three categories are looked at. These are the definitions, problems, and solutions. Hereby, the hierarchy is used to see what level is present in the Action Plan and to what extent. The following describes what is expected for each level, in ascending order.

- NBS: Nature-based solutions.
 - This implies green spaces which consist of multiple functions and which benefit humans in some way.
- Linked elements:
 - This implies that the green spaces of the previous category are connected in either a physical or functional way, meaning they are not isolated.
- GI:
 - Green infrastructure. This implies that there is a form of matrix present where multifunctional green spaces are connected physically and functionally.
- UGI:
 - Urban Green Infrastructure is hereby the highest form that can show up within the partnerships. It consists of all functions and form of Green Infrastructure within an urban environment.

Contribution to institutionalisation of GI discourse

In a second step the extent to which the UA contributes to the institutionalisation of the GI discourse is analysed using the PAA. Based on the PAAs four dimensions, a number of indicators were chosen.

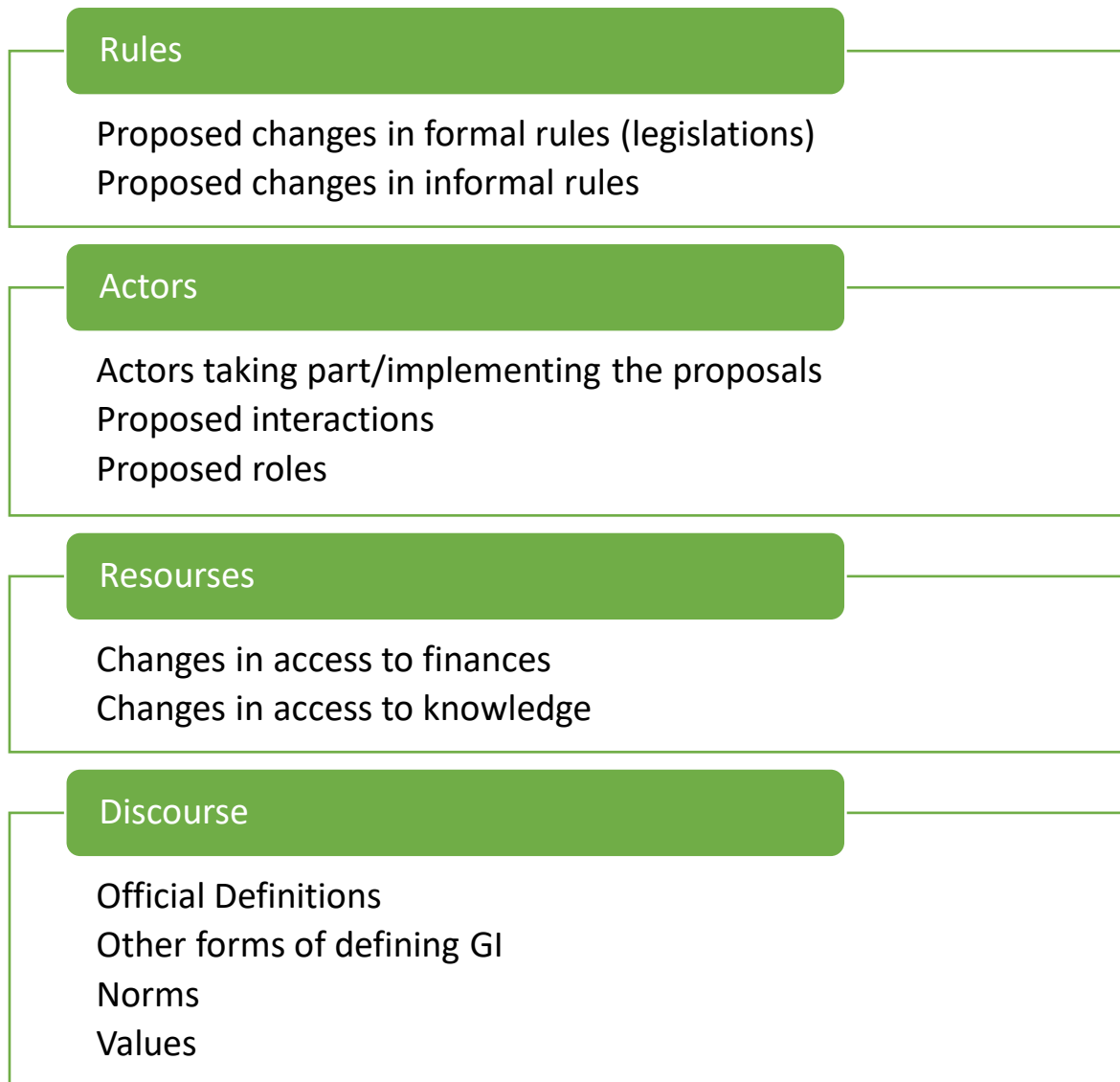


Figure 6: Indicators for further institutionalisation of discourse of Urban Green Infrastructure; (Own research)

The indicators are applied to the Action Plan of each case. Hereby, the proposed actions and changes that are related to Urban Green Infrastructure are collected and presented. Subsequently, the possible effects they might have on other dimensions of the PAA and what this could mean for the further institutionalisation of the discourse of UGI, are discussed.

Lastly, both cases are compared to give an overall answer to the research question.

3.2 Validity and reliability of the research

Validity and reliability are used for assessing the quality of research; reliability describing how well the research can be replicated while validity focuses on the integrity of the result drawn from the research.

Most information used in the research is publicly available, therefore accessible for everyone in case of replication of this research. The qualitative approach, however, will make it impossible for the case study to be replicated completely. To achieve a research that is as reliable as possible the process of research will be documented in detail and the transcripts of the few conducted interviews will be attached to the thesis and the analysing method explained.

As the research focusses on a quite special context that, for now, has no comparable situation, it might be difficult to argue for a high external validity. However, this does not mean that external validity with future cases would not be possible or that this research could not be applied to other situation where Green Infrastructure in urban areas meets international policies. Internal validity will be provided by the case study and comparing two Partnerships, that are given the same conditions and, at the beginning, differentiate only in their topic.

To answer the research questions, a qualitative approach seems to be the most appropriate, as it allows to go further into detail to explore the different actors, resources, discourse and rules of the game. As the most suitable method a case study was identified, as it is ideal to gain full insight into a specific process which is restricted in time and space (Verschuren & Doorewaard, 2010).

4. What is the Urban Agenda?

The Urban Agenda of the EU is an approach of the EU to improve life in urban areas by bringing together actors from a variety of backgrounds. As the definitions of city and urban area are different between the EU's member states, the Urban Agenda defines urban areas for the work of the Urban Agenda as “*all forms and sizes of urban settlement and their citizens*” (EU Ministers Responsible for Urban Matters, 2016, p. 3). In the following an overview over the historic development of the Urban Agenda is given, followed by an overview over the content of the Urban Agenda and its working method.

4.1. Historic overview over the Urban Agenda's development

The current Urban Agenda of the EU was adopted in 2016. However, the first-time urban problems were recognised within the EU was in the 1990s. Cities were seen as something that mattered, mainly due to the high concentration of problems and their economic opportunities. This led to the first intention of creating an Urban Agenda of the EU as proposed in 1997 by the European Commission (European Commission, 1997; González Medina, Moneyba, & Fedeli, Valeria, 2015). The following year a Framework for Action for Sustainable Urban Development was adopted by the European Commission. In this framework the EU stated to intend “*to examine EU policies from the point of view of their urban impact and to improve policy integration at urban level*” (European Commission, 1998, 1a). One of the goals set was “*Protecting and improving urban environment: towards local and global sustainability*” (European Commission, 1998, p. 14). Under this goal, several objectives were to be achieved via EU actions, including the promotion of biodiversity and green space within urban areas, fostering of eco-systems-based development approaches that help to improve the linkage between urban centres and rural surroundings. The framework also included specific actions for each goal (European Commission, 1998).

The content of this framework was to be discussed in an Urban Forum in November 1998. These Forums, so the EC promised, were to be continued and held every three years. However, according to Kneeshaw in 2014, this promise did not fully work out. Specific reasons on why these forums were not continued or when it stopped are not given as authors like Kneeshaw (2014) do not seem to know themselves. However, a series of Informal Meetings of Ministers responsible for Territorial Cohesion and Urban Matters took place over the past two decades, resulting in several documents adopted by these meetings (González Medina, Moneyba, & Fedeli, Valeria, 2015). These documents can be seen as milestones along the path that paved the way for the current UA as well as the base the UA is built on (EU Ministers Responsible for Urban Matters, 2016; González Medina, Moneyba, & Fedeli, Valeria, 2015; Olejnik, 2017).

Year	Place	Ministers responsible for	Documents
1999	Postdam (DE)	Spatial Planning	European Spatial Development Perspective
2000	Lille (FR)	Urban affairs	Lille Action Programme
2004	Rotterdam (NL)	Urban affairs	Acquis Urban
2005	Bristol (UK)	Sustainable Communities	Bristol Accord
2007	Leipzig (DE)	Urban policy	Leipzig Charter on Sustainable European Cities
2007	Leipzig (DE)	Urban development and Territorial cohesion	Territorial Agenda of the European Union
2008	Marseille (FR)	Urban development	Marseille Declaration
2010	Toledo (ES)	Urban development	Toledo Declaration
2011	Gödöllő (HU)	Spatial planning and Territorial Development	Territorial Agenda of the European Union 2020
2014	Athens (GR)	Cohesion Policy	Towards an EU urban agenda – future steps
2015	Riga (LV)	Territorial Cohesion and Urban Matters	Riga Declaration
2016	Amsterdam (NL)		Amsterdam Pact ²³

Figure 7: Informal meetings concerning the urban issues (González Medina, Moneyba, & Fedeli, Valeria, 2015)

Additional to the adopted documents the DG Regio was renamed into DG Regional and Urban policy in 2012. While this did not immediately solved conflicts that existed between DGs, it symbolised the transition towards a more urban focus.

Overall a general movement towards the mainstreaming of urban areas, urban Europeanisation and increasing attention to EU urban issues was developed over the years (González Medina, Moneyba, & Fedeli, Valeria, 2015).

The latest steps focusing on the creation of an Urban Agenda for the EU began again in February 2014 when the CITIES (Cities of Tomorrow: Investing in Europe) conference was held in Brussels, where questions about ideas for a “new” Urban Agenda were raised. This “new” Urban Agenda should not be confused with the New Urban Agenda, which was adopted 2016 Quito, Ecuador by the United Nations and is a global urban agenda (Mamadouh & van Wageningen, 2015; United Nations, 2017). The result of a nearly two-decade long development was the adoption of the Pact of Amsterdam in 2016, which is the main document of the current Urban Agenda of the EU (EU Ministers Responsible for Urban Matters, 2016). It stated the working process of the UA and is explained in more detail in the following chapter.

4.2. How the Urban Agenda of the EU works

The Urban Agenda of the EU is an ongoing project that has no defined ending. In the Pact of Amsterdam, it was stated that an Urban Agenda is needed, and its main features described. This includes the use of twelve Partnerships that focus each on a specific topic. Involved in these partnerships are a variety of stakeholders covering all government levels in the process (EU Ministers Responsible for Urban Matters, 2016). The partnerships each focus on one of the twelve priority themes that have been identified as important within the Pact of Amsterdam. Taking part in the partnerships is completely voluntarily, which makes it easy to agree with van der Heijden (2016) when he argues that all active stakeholders should have an interest in the respective topic.

Goals and objectives

According to van der Heijde (2015) the Urban Agenda strives to achieve three goals: The first goal is “to set the agenda for cities within the European Union” (Van der Heijde, 2015, p. 393). This shows that the European Union has acknowledged the importance of its cities and that more attention needs to be given to them. The second goal is “to ensure better coherence in European policies that affect cities” (Van der Heijde, 2015, p. 394). As most EU policies tend to be quite generic but include implications for cities it would be helpful to put more emphasis on cities to discover where problems lie (van der Heijde, 2015). The Urban Agenda should especially help where several EU policies meet but lack in synchronisation, therefore creating troubles for cities in their implementation. The last goal mentioned by van der Heijde (2015) is to bring all important issues relating cities together.

The set objectives stated in the Pact of Amsterdam that are to be achieved via the Urban Agenda are “better regulation”, “better funding” and “better knowledge” regarding topics concerning urban areas. This means that the Urban agenda is not a tool to create new policies or funds but to improve the existing ones in terms of their urban context. By allowing stakeholders of all levels to be included in the process of influencing EU policies, especially cities get a bigger recognition and opportunities than before. However, due to the broad range of stakeholders, it is also very likely that the motivations might be differing, each stakeholder trying to achieve their own goals within the project (Potjer et al., 2018). This could, but not necessarily, mean that the common goals that should be achieved through this approach might be hindered by a range of individual goals. It could also mean that consensus might be harder to reach, leading to less actions than hoped.

Rules

The implementation of the Urban Agenda is structured within the Pact of Amsterdam to be done using the voluntary tool of Partnerships. Each partnership is focussing on one of the topics presented in the Pact of Amsterdam, e.g. Climate Adaptation, Air Quality, Urban poverty, Circular economy and Sustainable use of land & Nature-Based Solutions (EU Ministers Responsible for Urban Matters, 2016). The Partnerships ought to implement the multilevel and cross-sectoral approach, portraying a horizontal and vertical coordination. The Partnerships are expected to each produce an Action Plan, consisting of coherent actions, within two or three years (EU Ministers Responsible for Urban Matters, 2016; Olejnik, 2017). These Action Plans are usually preceded by one or more Draft Versions as well as an Orientation Paper to set the direction of the partnership. The actions introduced in the Action Plans should assess impacts by taking possible impacts of EU legislations on Urban Areas into account. Additionally, knowledge, experience and monitoring results in Urban Areas are to be exchanged to improve reliable data on Urban Areas. Lastly, Actions by the Partnership should be aligned with and contribute to other international documents and works, such as ESPON, URBACT and the Urban Development Network of the EU. The partnerships work on their individual themes but are expected to coordinate between partnerships to avoid repetition or contradictory actions (EU Ministers Responsible for Urban Matters, 2016).

Actors

As mentioned, a variety of actors is taking part in the UA, covering multiple levels of government as well as multiple sectoral policies. Each partnership is required to be composed of 15 to 20 of the following partners for a balanced composition:

- Partners representing Urban Authorities, alternatively Regions, city consortiums, Partners States or national city umbrella organisations
- Partners representing Member States
- Partners representing the European Commission
- Partners representing stakeholders, e.g. private sector, EIB, NGOs, Experts
- Observers, e.g. URBACT, EUKN

One partner is to be appointed as the coordinator of the Partnership, responsible for organisation and coordination within the partnership and acting as a link to other actors outside the partnership (EU Ministers Responsible for Urban Matters, 2016).

Resources

As the Urban Agenda aims at improving existing regulations, funding, and knowledge, these are the main resources of the Urban Agenda. Nothing new is to be created. While appropriate data is to be collected to improve knowledge, existing instruments and tools are expected to be used as much as possible to minimize administrative burdens as much as possible. Additionally, each partner is expected to contribute and participate in the technical work of their partnerships using their own resources. The costs for their work are expected to be covered by the coordinators of the partnerships (EU Ministers Responsible for Urban Matters, 2016). No additional resources are provided by the EU for the implementation of the Urban Agenda.

5. Analysis of the 12 Partnerships

While the Urban Agenda consists of 12 partnerships, not all focus on themes that are likely to include the discourse of Urban Green Infrastructure. Therefore, and due to feasibility, the 12 partnerships had to be reduced to enable in-depth analysis.

Number	Name
01	Air Quality
02	Circular Economy
03	Climate Adaptation
04	Digital Transition
05	Energy Transition
06	Housing
07	Inclusion of migrants and refugees
08	Jobs and Skills
09	Public Procurement
10	Sustainable Land Use & Nature-based Solutions
11	Urban Mobility
12	Urban Poverty

Table 2: Partnerships of the Urban Agenda (Own research)

To come to a selection of the most relevant partnerships, as a first step all Action Plans of the 12 partnerships were reviewed via a word count using selected key words. These key words were based on literature review regarding Green Infrastructure and words that are usually associated with it. A word count on literature concerning GI that was used in the previous chapter 3.1.1 resulted in the following key words: biodiversity, climate, ecological, ecosystem, environment, environmental, GI (as abbreviation of Green Infrastructure), Green, Infrastructure, natural, nature, nature-based, nbs (as abbreviation of nature-based solutions), solution(s), sustainability and sustainable.

After conducting a word count on all action plans of all 12 partnerships the following was the outcome.

Partnership	biodiversity	Climate	ecological	ecosystem(s)	environment	environmental	GI	Green	Infrastructure	natural	nature	nature-based	nbs	solution(s)	sustainability	sustainable	sum
10	24	20		24	32	50		59	40	19	30	52	180	89	7	111	737
3	1	411		9	17	12		16	20	7	8	1		1	1	20	524
6	1	9	2	2	11	20		3	32	4	23			39	13	55	214
2	2	14		4	26	30		5	18	6	3			13	8	74	203
4		2	1	8	9	4			34	1				91	5	14	169
11	1	6		1	8	3			31	1	1			15	2	56	125
5	4	42			8				7		2			22	1	37	123
8		3		17	7	8			20	1	1			9	2	49	117
9		7		2	1	29		2		1	1			23	8	30	104
1	2	16		2	11	11		3	8	2	1	2		15		26	99
12	1	10		2	7	11			3	1	1			15	1	26	78
7		3			6	3		1	5	2		1		7	2	21	51

Table 3: Word count on Action Plans of all 12 Partnerships (Own research)

Using this result, at first only four partnerships were taken into further account. These are the partnerships 10, 3, 6 and 2, as these are the only to mention the key words over 200 times. Three Partnerships mention them even less than 100 times.

From these four Partnerships only two (3 & 10) mention the word green more than 10 times, and the term nature-based at all. Additionally, the abbreviation NBS for nature-based solutions is only present in partnership 10. Lastly, the sum of all key words in partnerships 3

and 10 are over 500, therefore indicating that the discourse of GI or other levels of its hierarchy might be incorporated in them. This reduces the partnerships for further in-depth research to the Partnerships 3 and 10. These are the partnerships “Climate Adaptation” (no. 3) and “Sustainable Land Use & Nature-based Solutions” (no. 10).

6. In-depth analysis of 2 Partnerships

In the following chapter the partnership Sustainable Land-Use and Nature-based Solutions (SLU&NBS) and the partnership Climate Adaptation (CA) are analysed in detail to answer the research question. The partnership SLU&NBS is Case 1, partnership CA Case 2.

6.1. Case 1 – Partnership Sustainable Land-Use and Nature-based Solutions

Case 1 is concerning the partnership Sustainable Land Use and Nature-based solutions. As explained before, in a first step the presence of the discourse of UGI is addressed, followed by the analysis of the contribution of the partnership to the institutionalisation of the discourse of UGI. Lastly, a conclusion is drawn.

6.1.1. Presence of the discourse of UGI

The following section is dedicated to answering the first part of the main research question: How well is Green Infrastructure incorporated into the Urban Agenda of the EU, using the first of two cases, the Partnership Sustainable Land Use & Nature-based Solutions.

Therefore, the final Action Plan, the document that could be counted as the overall physical end-result of the partnership's work over the last years, is analysed regarding the presence of the discourse of Urban Green Infrastructure.

The Partnership has worked together for 2 years after which they presented an Action Plan, containing 9 actions that the partners want to implement afterwards. This does not mean that the work of the partnership or the UA has finished, but it is an official document presenting outcomes of the previous work and presenting a guide of what's happening now.

The action plan consists of a number of definitions at the beginning, explaining certain terms. It is followed by a presentation of the most pressing issues the partnership decided to work on and is followed by the description of the 9 Actions. The whole Action Plan was analysed in the following to answer the question of how UGI is incorporated into the Urban Agenda. To measure the presence of UGI the previously in chapter 2.1.1 introduced hierarchy was used.

Definitions

I start, as the Action Plan, with the definitions. At the beginning of every work, especially group work, some terms should be defined to eliminate misunderstandings. The Action Plan did so by defining several terms. Relevant for this research are "Green Infrastructure" and "Nature-based solutions". This is especially necessary when working with these terms as, as mentioned at the beginning of the thesis, these terms do not have universally official definitions. Including a definition for GI shows from the beginning of the Action Plan, that GI is incorporated in some way and that it is important as a discourse for the partners in some way. It also shows how the partnership is defining GI. The definition used, as presented below, is not a newly created one but the working definition of the EC, published in 2013.

Green Infrastructure:

"Green infrastructure is a strategically planned network of natural and semi-natural areas with other environmental features designed and managed to deliver a wide range of ecosystem services. It incorporates green spaces (or blue if aquatic ecosystems are concerned) and other physical features in terrestrial (including coastal) and marine areas. On land, green infrastructure is present in rural and urban settings (adopted after: COM(2013) 249 final)." (Sustainable Use of Land and Nature-Based Solutions Partnership, 2018b, p. 4)."

The partnership also defines the term Nature-based solutions. It is noticeable that the partnership here created a new definition for themselves.

Nature-based solutions:

“Nature-based solutions are defined as a way to address societal challenges with solutions that are inspired and supported by nature, which are cost-effective, simultaneously provide environmental, social and economic benefits and help to build resilience. Such solutions bring more nature and natural features into cities, landscapes and seascapes, through locally adapted, resource-efficient and systemic interventions.” (Sustainable Use of Land and Nature-Based Solutions Partnership, 2018b, p. 3)”

Despite the definitions, both terms are not brought into perspective of each other, leaving the relationship between GI and NBS and their possible position in my proposed hierarchy unclear.

The only time it is addressed in a more apparent way is in Action 7 in a sub-sentence, stating that Green Infrastructure is only one element of Nature-based Solutions (Sustainable Use of Land and Nature-Based Solutions Partnership, 2018a). However, this comes quite late in the text, leaving the reader to having to guess the relationship on the basis of sentences such as “NBS, including ecosystem services and green and blue infrastructure” (Sustainable Use of Land and Nature-Based Solutions Partnership, 2018a). Considering that both terms were defined in the beginning, it is a bit difficult to understand why the relationship between them could not have been explained, or briefly mentioned within their definitions. This leads to uncertainties to whether GI could or even should be considered part of all NBS related actions or solutions.

Problems

The Action Plan is mentioning several problems that the partnership is aiming to address using the proposed actions. These problems will be mentioned more in detail at a later point in this text when the process is analysed.

Within the final Action plan it is mentioned that “NBS, including ecosystem services and green and blue infrastructure, are not yet sufficiently used in the cities” (Sustainable Use of Land and Nature-Based Solutions Partnership, 2018a). This lead to a need to increase the presence of GI and green spaces in urban areas. The action plan includes a list of 25 bottlenecks identified by the partners, only one of them mentioning Green Infrastructure. This is bottleneck 3, stating a lack of understanding of the economic value of strong GI and that planers, investors and funders need to understand the benefits GI can have for future urban development (Sustainable Use of Land and Nature-Based Solutions Partnership, 2018a).

Solutions

Next, the solutions in form of the Actions are analysed regarding the incorporation of GI. The following table should give an overview over the actions, their solutions, and their positions within the GI hierarchy. The solutions are briefly summarised and mentioned, whether the partnership decided that its focus lies on SLU or NBS. The position in the GI hierarchy is supposed to indicate what level of GI is part of the solution. For the levels see chapter 2.3.3.1 on the grade of integration, however, I want to add the preposition of “taking into account” to the levels. This addition means that GI, NBS or another level is not directly included into the solution but is mentioned throughout the explanation of the solution or

action as something that needs to be taken into account or in some other way considered. This means that even though it is not an active part of the solution, at least attention is (however briefly) brought to the subject.

Action	Solution	SLU / NBS	Hierarchy	Comments
Action 1	Improve land use assessments	SLU	Taking into account NBS and urban greening	Action as preparatory measure for future implementation of NBS / green areas
Action 2	Funding and financing guide for brownfield redevelopment	SLU	Taking into account NBS and green spaces	
Action 3	Identifying and managing under-used land	SLU	Taking into account future GI	A good implementation of this action might present opportunities for inter alia GI
Action 4	Indicators of land take	SLU	-	
Action 5	Promoting Functional Urban Areas cooperation as a tool to mitigate urban sprawl	SLU	-	Mentioned GI once, that action might help promote it across administrative borders. Was mentioned more frequent in the draft version of the Action Plan and reduced in the final version.
Action 6	Better regulation to boost NBS at European, national and local levels	NBS	Taking into account GI	Mentioned as something related to NBS and as something that is still missing in some directives
Action 7	Better financing on NBS	NBS	NBS	GI named as to NBS related term. Identifies GI as only one element of NBS
Action 8	Awareness raising in the areas of NBS and sustainable use of land (urban sprawl)	NBS / SLU	NBS	Increasing awareness about NBS
Action 9	Agreeing on common targets and indicators for NBS, UGI, biodiversity and ecosystem services in cities	NBS	UGI	Setting targets for UGI

Table 4: Overview over Actions and Solutions, Case 1 (Own research)

The table shows that at a first look, only one action is dedicated towards Green Infrastructure. This is action 9, aiming at common targets and indicators for NBS, UGI, biodiversity and ecosystem services in cities.

Actions 3, 5 and 6 mention Green Infrastructure throughout their explanation, usually as something related to their solutions. For example, action 5 wants to push coordinated spatial planning across functional urban areas, justifying it with the potential help it could provide in promoting green infrastructure across administrative borders (Sustainable Use of Land and Nature-Based Solutions Partnership, 2018a). Action 3 explains that the action (identifying and managing under-used land) can help unlock potential areas for, inter alia, green infrastructure (Sustainable Use of Land and Nature-Based Solutions Partnership, 2018a). Action 6 (better regulation to boost NBS at EU, national & local levels) states that GI is already present in some EU policies, however still underrepresented in certain directives, such as the Flood Directive. As the Action aims at better integration of NBS into the policies and considering the slightly vague relationship between GI and NBS, it is unclear to what extent GI is expected to be part of the better integration. Assuming the position mentioned in Action 7, positioning GI as an element of NBS, it could be expected that GI, as well as other in some form NBS-related terms, should be part of this Action's implementation. In Action 7 (creating a guide to EU financing of NBS) it can therefore be expected for existing funding possibilities for GI to be included in the guide. It is also explicitly mentioned that financial incentives for innovative NBS and hybrid grey-green infrastructure should be integrated at EU, national and sub-national authorities' levels. Even though Action 8 does not mention GI in any word, it is addressing bottleneck 3. It can be therefore expected that GI is considered part of NBS and therefore the awareness raising the action is proposing. The Action mentions that the language should be simplified as it led to some trouble understanding the concept. It can be hoped that that includes GI and the relationship between them, as it is certainly difficult to understand.

To summarise, the discourse of Urban Green Infrastructure is present within the Action Plan of this partnership. However, it is rarely the focus of proposed solutions. Only one Action, Action 9 is partly focusing on the discourse of Urban Green Infrastructure by aiming at common targets and indicators. Throughout the rest of the Action Plan UGI is mainly mentioned as secondary. UGI is mostly mentioned as either something that needs to be acknowledged and addressed, but not within the certain Action, or it is mentioned as something that could be achieved additionally by a certain action even though it is not the focus. Overall, it comes apparent that a variety of actors and partners are aware of the discourse of UGI. However, it seems to be either not known well enough or the priorities lie on other issues, giving UGI a lower priority than other current urban issues or solutions.

6.1.2. Institutionalisation of the discourse

The following is dedicated to answering the second part of the research question about the influence of the UA on the institutionalisation of the discourse of GI.

Here the Policy Arrangement Approach is used to identify proposed changes within the four dimensions (rules of the game, actors, resources, discourse) and the influence these changes might have on the other dimensions.

The partnership mentions, even though only briefly, that Green Infrastructure is an element of Nature-based Solutions. Furthermore, the partnership keeps the terms NBS and GI quite broad within its Action Plan. Therefore, it is assumed within this analysis that GI is considered part of the discourse whenever NBS is mentioned.

As discovered in the previous chapter, the discourse of Urban Green Infrastructure is present within the Action Plan of this partnership, even though with lower intensity and priority than other urban issues and solutions and often deferred to a later point in time. Still, it is present and could have an effect on the further institutionalisation of the discourse, even though with a probably lower effect.

Rules of the game

Within the dimension of the rules of the game two categories were chosen, formal legislations and other informal rules. These include all changes in rules that are proposed by the partnership that address Urban Green Infrastructure in some form and in any level of its hierarchy.

Proposed changes in formal legislations

The Urban Agenda stated at the beginning, that no new rules were meant to be made within the works of the Urban Agenda. However, changes to existing legislations can be proposed.

While focussing on land take, the partnership proposes to integrate and strengthen existing procedures so that they are more efficient in reducing land take. This is expected to inter alia foster the introduction of Nature-based Solutions into the build environment.

Additionally, the partnership proposes the integration of NBS within Directives at EU level. Specific focus lies here on the Flood directive, as that hardly mentions Green Infrastructure, the Strategic Environmental Assessment, and the EU strategy for adaptation to climate change.

The EU Green Public Procurement criteria are also mentioned to be considered for further integration, however, no more information on the implementation is given there.

Proposed changes in formal legislations	Action
<ul style="list-style-type: none"> ➤ Integrate and strengthen existing procedures to make them more effective in reducing land take. That would contribute to ensuring liveable compactness and “foster” the introduction of NBS within the build environment. (p. 22) ➤ Integration of NBS within Directives at EU level (2). (p.23) ➤ Mainstreaming the consideration of land take issues into existing assessment procedures to make it easier for cities to support different planning alternatives, such as urban greening. (p.22) 	Action 1
<ul style="list-style-type: none"> ➤ Guide for brownfield redevelopment. (p.27) 	Action 2
<ul style="list-style-type: none"> ➤ Better integration of NBS into existing directives needed. This includes GI ➤ Especially the Flood Directive, which hardly mentions GI; the EU strategy for adaptation to climate change, the Strategic environmental Assessment. ➤ The EU Green Public Procurement criteria will be considered for further integration 	Action 6

Table 5: Proposed changes in formal legislations, Case 1 (Own research based on EU Ministers Responsible for Urban Matters, 2016)

Possible influence on other dimensions

The (further) integration of NBS into formal legislations, especially EU wide, can have an influence on the other dimensions. More actors working in policy making will be confronted with the term of NBS and therefore possibly the term GI while working on including it into existing legislations. The inclusion itself can lead to more actors at the implementation stage to be confronted with the terms, which then can lead to more actors engaging with the discourse. Therefore, the discourse of (Urban) Green Infrastructure can become more widespread, more discussed and mainstream. It can also serve as an indicator showing the value and importance that is given to them. While this does not necessarily mean that changes and their implementation will automatically occur, it is definitely a sign towards a certain direction.

The inclusion of these terms into formal legislations can also open up access to more resources. It could help spread awareness of the terms, possibly helping in improving knowledge of actors. It might also make more actors aware of access to existing funding sources, and encourage more actors to concern themselves with funding possibilities or to create new projects.

Proposed changes in informal rules

The partnership aims at creating or agreeing on a number of indicators. These are for one, indicators of land take that should take, inter alia, urban greening into account.

Secondly, agreeing on indicators and common targets for NBS, UGI, biodiversity and ecosystem services in cities is suggested. While for neither specific indicators are proposed within the Action Plan, it is suggested that their existence would be helpful.

Lastly, the partnership proposes more cooperation within Functional Urban Areas. This includes, inter alia, specifically the promotion of Green Infrastructure across administrative borders.

Proposed changes in informal rules	Action
➤ Finding examples of good brownfield redevelopment based on criteria including the integration of NBS and the creation of green spaces. (p.29)	Action 2
➤ Indicators of land take that take into account urban greening. (p.36)	Action 4
➤ Promote GI across administrative borders. (p.41)	Action 5
➤ Guidelines to existing NBS funding sources. (p.48)	Action 7
➤ Agreeing on common targets and indicators for NBS, UGI, biodiversity and ecosystem services in cities. (p.58)	Action 9

Table 6: Proposed changes in informal rules, Case 1 (Own research based on EU Ministers Responsible for Urban Matters, 2016)

Possible influence on other dimensions

While the partnership does not go into detail on the content of indicators, the introduction of such indicators could lead to multiple effects. The existence of such indicators could help mainstream the implementation of Green Infrastructure and Nature-based Solutions in general. It can also help for more actors to understand Green Infrastructure and how it can be used, and make it more comparable and connectable, within and across borders. Agreeing on indicators can also have a great effect on the discourse of Urban Green Infrastructure as it opens up the discourse between stakeholders in a focussed way. Additionally, it can enhance the discourse in a great way as it helps giving structure to the terms, something that is comparable and measurable. This way the implementation of GI and NBS measures can be better monitored, making the implementation more tangible.

Actors

Within the dimension of actors, action regarding the actors taking part, proposed interactions between actors and proposed roles were chosen.

Actors taking part

Through the proposed actions of the partnership a number of actors are expected to take part in their implementation. While most of them are the partners, more specifically the national and regional authorities and cities represented by those partners, a few other external stakeholders are expected to be involved. For one, the DG ENV is supposed to be involved via a meeting or a workshop. Secondly, the EU H2020 project cluster on NBS should be engaged.

Actors taking part	Action
➤ Meeting of partners with DG ENV. (p.23)	Action 1
➤ National and regional authorities and cities of the partnership	Action 6
➤ Guides aimed at people that seek financing for the implementation of NBS, for example representatives of cities and other local authorities, urban planners, investors etc. (p. 48)	Action 7
➤ EU H2020 project cluster on NBS	Action 8

Table 7: Actors taking part, Case 1 (Own research, based on EU Ministers Responsible for Urban Matters, 2016)

Possible influence on other dimensions

Not many actors outside the partnership are directly addressed to be involved in the implementation of the proposed actions. Still, those that are directly expected to be involved can have an influence on other dimensions. Every meeting of a variety of actors, as for example with the DG ENV or a Horizon 2020 project cluster, is a chance for a discourse to

evolve, to change and to be spread. Therefore, even those few actors directly addressed can reach other actors and influence them. Those partners of the partnership working on the implementation of actions regarding UGI can make local differences, for example expand the implementation of NBS or other UGI projects by using the guides to financing. More resources (e.g. financial) can be utilised by these actors, more knowledge spread. The discourse of UGI can be spread to more actors that get in contact with the actors, as well as evolve through more and possibly new input.

Proposed interactions

Interactions proposed by the partnership include meetings, consultations, workshops and addressing the public. For most of them, the aim is to bring those relevant to the specific action together. For one, stakeholders related to NBS are suggested to be brought together to implement specific tasks, such as better implementation of NBS within directives or agreement on indicators. At other times it is aimed at improving the communication between the partnership and other projects concerning NBS or GI, such as H2020 projects. The second type of interactions are more in one direction and aimed to educate, while the first type aims at communication in multiple directions.

Proposed interactions	Action
➤ Public consultation of SEA Directive on Strategic Environmental Assessment. (p.23)	Action 1
➤ Workshops with national or local regulative (to NBS) stakeholders (p.46) ➤ giving recommendations from regulative stakeholders to EU Commission (p.46)	Action 6
➤ improve access to knowledge about NBS for those interested by simplifying the language. (p.54) ➤ education of all levels about NBS (p.55) ➤ improve cities' communication strategies by engaging existing organisations and media in disseminating knowledge and communicating the benefits of NBS in urban areas to reach broad citizen groups. (p.56) ➤ engage European organisations in existing NBS related projects, events and advocacy platforms for addressing relevant target groups, including local governments, young professionals, scientists and policy makers at different levels. (p.56) ➤ communication between activities of partnership with those developed by H2020 projects. (p.56) ➤ local level: engage scientific community on NBS with communication experts to standardise vocabulary and create a booklet which clearly communicates the theory and meaning behind NBS with specific examples. (p.57) ➤ create a campaign to educate and inform about NBS, its benefits, its importance in rapidly urbanised areas, its added value and compare to traditional grey infrastructure. (p.57)	Action 8
➤ bringing together several parties that are already working on the topic of NBS and GI, and offer cities a chance to contribute in making targets and indicators that are relevant and easily adaptable for implementation in cities. (p. 59)	Action 9

Table 8: Proposed interactions, Case 1 (Own research, based on EU Ministers Responsible for Urban Matters, 2016)

Possible influence on other dimensions

Most interactions proposed are done so with a specific outcome in mind. Interactions between NBS related stakeholders are aimed at bringing results, either in formal or informal legislation (better inclusion in directives or creating indicators). One-way interactions are mostly aimed at the public to educate about NBS, GI and similar topics. This can therefore have influence on resources such as the knowledge actors or the public possess regarding NBS and GI. It also can have influence on the discourse as more stakeholders get connected and more information is exchanged.

Proposed roles

Most roles proposed are rather side effects of other intentions than the aim itself. For example, partners are turned into informants collecting information about the status of NBS in their existing local strategies. The most noticeable role proposed is the creation of ambassadors aiming to build awareness about NBS. These ambassadors are expected to be storytellers on European level that get educated about the topic, rather than experts learning to promote the topic. These ambassadors are expected to participate in events and forums concerning the topic. Other actions aim to turn partners into advisers, for example for the EU commission concerning the integration of NBS within existing Directives and other EU documents.

Proposed roles	Action
<ul style="list-style-type: none">➤ Partners developing recommendations for EU Commission concerning the integration of NBS within existing Directives and other EU level documents➤ National and regional authorities organising workshops to bring national and local relevant stakeholders (related to NBS) together (p.46)➤ Partners collecting information about status of NBS within their existing local strategies (p.46)	Action 6
<ul style="list-style-type: none">➤ Urban representatives, networks and funding providers requested to give feedback on the guide draft. (p.49)	Action 7
<ul style="list-style-type: none">➤ Promotion and communication of NBS to the public (p.57)➤ Educate story-tellers on European level and turn them into ambassadors to build awareness about NBS while participating in events and forums on the topic. (p. 57)	Action 8

Table 9: Proposed roles, Case 1 (Own research based on EU Ministers Responsible for Urban Matters, 2016)

Possible influence on other dimensions

The biggest influence these proposed roles have is that of improving knowledge about NBS. By turning storytellers into ambassadors, it is guaranteed that they are experienced in bringing a topic across and spread knowledge. The focus lies on the presentation of the content so that everyone can be reached.

Again, improved knowledge can lead to developments within the discourse of the NBS. Generally, UGI is less addressed within the roles proposed but rather NBS. However, as NBS and UGI are connected, this could also have an influence on the discourse of NBS. While spreading knowledge concerning NBS it should be expected that the connection to UGI or just GI would be made at some point.

Resources

For the dimension of resources, changes in finance and knowledge were chosen.

Changes in access to finance

As the UA mentions, no new funds are created within the works of the UA. Most actions of the partnership are therefore aimed at improving existing funds. Considering NBS and GI, this mostly means creating guidance towards the access to these funds. As EU funds concerning NBS and GI are existent, but rather difficult to access for most actors, the visibility and understanding of these funds need to be increased. Additionally, financial incentives for supporting the uptake of grey-green infrastructure hybrids are proposed. Lastly, the description of mitigation of higher initial investment costs of NBS versus grey infrastructure are proposed.

Proposed changes in access to finance	Action
<ul style="list-style-type: none"> ➤ Guide to brownfield redevelopment that includes a guide to funding, including a description of the link with NBS. (p.28) → linking NBS with financing brownfield redevelopment 	Action 2
<ul style="list-style-type: none"> ➤ Acknowledgement that funding for NBS and GI is widely available via EU sources, but an information deficit hinders cities and others to apply for that money. (p.47) ➤ Visibility and understanding for the different funding sources concerning the integration of NBS into urban development needs to be increased. (p.47) ➤ Guide to existing NBS funds. (p. 48) ➤ Description of mitigation of higher initial investment costs of NBS versus grey infrastructure. (p.48) ➤ Financial incentives should be integrated to support the uptake of grey-green infrastructure hybrids. (p.51) 	Action 7

Table 10: Proposed changes in access to finance, Case 1 (Own research based on EU Ministers Responsible for Urban Matters, 2016)

Possible influence on other dimensions

Most influence of these actions is on knowledge. The increased knowledge can therefore have influence on the discourse.

The proposed changes in finance mainly have an influence on knowledge as knowledge on funding is increased. This increased knowledge can shape the actions of actors, as the access to funding might increase and unlock previously unused potentials within cities and urban areas. This might also lower possible scepticism of actors, as the initial investment costs of greener infrastructure versus grey infrastructure gets more graspable. The integration of financial incentives to support the uptake of grey-green infrastructure hybrids holds potential to influence not only actors, who might turn to such implementation. The discourse of Green Infrastructure might be shaped by such incentives as a hybrid solution might lower the rejection of “greener” solutions as it might be easier for some actors to accept. It could also open up the discourse more to a wider range of solutions that are more sustainable than grey infrastructure while less “extreme” than pure green infrastructure solutions.

Changes in access to knowledge

Quite a lot of changes in access to knowledge are proposed concerning GI or NBS. Most of it contains the collection of information and making it available for the public or actors of implementation.

Collection of information includes the collection of case studies to test methods for assessing and comparing the sustainability of different urban development and compactness scenarios in which urban greening is taken into account. Others are the selection of good practices concerning brownfield redevelopment based on a set of criteria that includes the integration of NBS and the creation of green spaces. National and regional authorities and cities are asked to better understand where NBS is already integrated into their strategies, where it meets minimum requirements and where it needs to be improved and prepare an overview over this information.

Existing information is proposed to be better distributed and brought to the recipient to form a better knowledge base about GI and NBS. This means for one to enhance the evidence base on the social, economic and environmental benefits of NBS. It also means to bring the knowledge concerning what NBS is to the broad society and educate on all levels about NBS. Therefore, promotion of NBS, including GI in urban environment, is needed and recommended by the partnership. Knowledge about the overall impact of NBS and the mid-to-long-term profitability and effects need to be provided. Another important task the partnership proposes it to simplify the language and standardise the vocabulary concerning NBS, and to create a booklet that clearly communicates the theory and the meaning behind NBS, and that includes examples for better understanding.

Proposed changes in access to knowledge	Action
➤ Collect study cases to test methods for assessing and comparing the sustainability of different urban development/compactness scenarios taken urban greening into account (p.23)	Action 1
➤ Selection of good practices concerning brownfield redevelopment based on a set of criteria that includes the integration of NBS and the creation of green spaces (p.29)	Action 2
<ul style="list-style-type: none"> ➤ National and regional authorities and cities intend to better understand where NBS is already included and integrated into strategies, where it meets minimum requirements and where it needs to be improved. (p.45) ➤ Partners prepare overview about status of NBS within existing local strategies and existing minimum legal requirements referring to NBS in their urban plans and building regulations (p.46) 	Action 6
<ul style="list-style-type: none"> ➤ Promotion of NBS. Including GI in urban environment. (p. 51-52) ➤ Knowledge about NBS funds needs to be increased. (p.47) ➤ Guidance concerning the overall impact and mid-to long-term profitability and effects of NBS will be provided. (p.49) 	Action 7
<ul style="list-style-type: none"> ➤ Knowledge among broad society concerning what NBS is is still quite limited, relatively new concept. (p.54) ➤ Need to simplify the language to pervade numerous interest groups. (p.54) ➤ Education on all levels about NBS (p. 55) ➤ Simplification of language and recommendations (p.55) ➤ improve cities communication strategies by engaging existing organisations and media in disseminating knowledge and communicating the benefits of NBS in urban areas to reach broad citizen groups. (p.55) ➤ standardise vocabulary concerning NBS and create booklet that clearly communicates the theory and meaning behind NBS, including specific examples. (p. 57) 	Action 8
➤ Enhancing the evidence base on the social, economic and environmental benefits of NBS as part of the aim of the partnership (p.12)	Relevant issues

Table 11: Proposed changes in access to knowledge, Case 1 (Own research based on EU Ministers Responsible for Urban Matters, 2016)

Possible influence on other dimensions

Improved access to knowledge concerning NBS and GI can have a significant effect, especially on the dimension of the discourse. While issues hindering the implementation of NBS and GI can be found in the dimension of the rules of the game, the main obstacle seems to be the understanding of the topic. Even within the partnership's actions plan, the concepts of NBS and GI and their relation to each other are not clearly visible. Within the discourse of GI and NBS it seems to not be clearly understandable what is meant by these terms, leading to several different definitions, values, and norms. This can be quite confusing, especially for those who do not dive deep into the matter. Simplification of language and standardisation of vocabulary can open up the discourse to a broader audience, hereby expanding it. It can also have an effect on the actors, who might understand the topic better and how to implement NBS and GI more easily. It can open up the access to other resources, such as funding or budgets.

Lastly, better understanding of the topics NBS and GI and their benefits can lead to more acceptance of such solutions, within civil society, market, and state. This can affect the making of policies as well as the acceptance of the implementation of projects by the public or the creation of projects by the market.

Improving the access to knowledge about the discourse of NBS and GI can therefore have a major positive effect on the institutionalisation of the discourse of GI.

Discourse

For the dimension of the discourse the indicators, official definitions (as defined by the partnership) and other forms of definition as well as changes in values and norm were selected.

Official definitions

The terms Green Infrastructure and Nature-based Solutions were given official definitions within the Action Plan, stating the Partnership's norms and values concerning these terms. However, while these are the official views, it does not mean that it represents the individual actor's views.

Official definitions	Term
➤ "Green infrastructure is a strategically planned network of natural and semi-natural areas with other environmental features designed and managed to deliver a wide range of ecosystem services. It incorporates green spaces (or blue if aquatic ecosystems are concerned) and other physical features in terrestrial (including coastal) and marine areas. On land, green infrastructure is present in rural and urban settings (adopted after: COM(2013) 249 final). (Sustainable Use of Land and Nature-Based Solutions Partnership, 2018b, p. 4)."	Green Infrastructure
➤ "Nature-based solutions are defined as a way to address societal challenges with solutions that are inspired and supported by nature, which are cost-effective, simultaneously provide environmental, social and economic benefits and help to build resilience. Such solutions bring more nature and natural features into cities, landscapes and seascapes, through locally adapted, resource-efficient and systemic interventions. (Sustainable Use of Land and Nature-Based Solutions Partnership, 2018b, p. 3)"	Nature-based Solutions

Table 12: Official definitions, Case 1 (Own research based on EU Ministers Responsible for Urban Matters, 2016)

Possible influence on other dimensions

The official definitions the partnership agreed on at some point during the working process mostly has an effect on the understanding of the reader as an actor. It shapes the understanding of what the reader thinks is implied with every use of these terms.

The inclusion of a definition within such a document as the Action Plans means that at some point during the process the partners came together, at least some of them, to discuss and agree on these definitions. This means that the partners have addressed these terms within the creation process of the Action Plan. To create a definition or even just to agree to take over a definition published by an institution means that the partners were engaged with the discourses of these terms. Therefore, the dimension of actors was influenced by the agreement on the definitions.

This process in turn can have an influence on the discourse of UGI in general, as a discussion concerning a definition of Green Infrastructure and Nature-based Solutions took place. However, the influence on the discourse of UGI seems not to have been great.

According to partners the discourse concerning the definition of Green Infrastructure and in connection the whole discourse of GI was given less focus than other issues and solutions. The reason given was mainly that that due to time constraint within the process only a few selected themes could be focused on. Quite early on in the process it seems to have come apparent that other issues, such as brownfield development and liveable compactness were a priority for most of the partners (Kiwitt, 14.07.20; Lafeuille, 15.06.20).

It could be assumed that the influence on the discourse of GI and the further institutionalisation of this discourse could be greater if more time and dedication would have been given towards it. A new formulation of a definition for Green Infrastructure could have been a result.

Other forms of definitions

The action plan gives an additional piece of information that defines the relation between GI and NBS within the text of Action 7. There it is stated that GI is only one element of NBS. This leads to the assumption that NBS is a broader term, containing, inter alia, the concept of GI.

Additionally, interviewees showed that the internally agreed on definitions are not the personal definitions of each partner. Some define it more broadly, other adopted the definition by the EEA. The relation between both terms is also not universally seen.

Other forms of definition	Term/Action
<ul style="list-style-type: none"> ➤ NBS related terms that are mentioned in EU policy documents include green and blue infrastructure, ecosystem-based approach, sustainable management, nature-based solutions. (p. 47) ➤ GI is only one element of NBS. (p. 51) 	Action 7
<ul style="list-style-type: none"> ➤ Multifunctional development of open spaces (Kiwitt, 14.07.20) ➤ Definition by EEA: “GI is based on the principle that ‘protecting and enhancing nature and natural processes are consciously integrated into spatial planning and territorial development.’ Accordingly, the GI Strategy defines GI as ‘a strategically planned network of natural and semi-natural areas with other environmental features designed and managed to deliver a wide range of ecosystem services’ in both rural and urban settings.” (Lafeuille, 15.06.20) ➤ Definition of the partnership, but as Urban Green Infrastructure and with an emphasis on public (Torgeir Esig Soerensen, 25.6.20) 	Green Infrastructure, comments by some partners

Table 13: Other forms of definition, Case 1 (own research; based on EU Ministers Responsible for Urban Matters, 2016)

Possible influence on other dimensions

As with the official definitions, these other forms of definition mostly have an influence on the dimension of actors. It informs other actors on the view how GI and NBS are seen. Especially the relation between these terms explains more about them. Additionally, it can have an influence on the dimension of resources, especially concerning knowledge, as it contributes to the sharing of knowledge and information about NBS and GI.

Proposed changes in norms

The Partnership proposes a number of actions that ideally should become norms in the future. These are, inter alia, the creation and agreeing on common targets and indicators for UGI, NBS, biodiversity and ecosystem services. It also includes the implementation of NBS and the incorporation of green spaces into brownfield redevelopment, assessment procedures concerning land take and generally increase the presence of NBS, GI and green spaces in urban areas. NBS, GI and ecosystem services are aimed to be included more strongly within EU policies and legislations, making them a norm rather than something out of the ordinary.

At the implementation stage, the partnership also aims to make the decision to use NBS more the norm by informing about the overall costs of NBS in comparison to grey infrastructure, as well as encourage to choose green-grey infrastructure hybrids over grey infrastructure.

Overall, the partnership acknowledges that NBS, and in connection GI, is not yet a standard solution, sustained by a bias towards technically well-known and existing solutions.

Proposed changes in norms	Action
➤ Foster introduction of NBS in process of building the city through including land take in input assessment procedures. (p. 21)	Action 1
➤ Brownfield redevelopment as an opportunity to implement NBS and create green spaces (p.25)	Action 2
➤ Urban green areas are included in urban or artificial land development (p.35)	Action 4
➤ It is acknowledged that NBS, GI and ecosystem services are in some forms already present in EU policies and legislations, but not strong enough (p.44)	Action 6
<ul style="list-style-type: none"> ➤ Initial investment costs of NBS often higher than in grey infrastructure (p.48) ➤ Acknowledgement that NBS are not yet standard solution and that bias towards existing and technically well-known solutions exists. (p.50) ➤ Initial investment costs for NBS often higher but can be recovered over the lifetime of the project. (p.50) 	Action 7
➤ Common targets and indicators for UGI, NBS, biodiversity and ecosystem services are needed. (p.58)	Action 9
<ul style="list-style-type: none"> ➤ Environmental challenges closely linked to urban planning (p.11) ➤ Many cities struggle with environmental issues (p.11) ➤ Protection of urban green areas, promotion and development of new NBS into the compact city to ensure more liveable conditions should be promoted more as an approach. (p.12) ➤ Increasing the presence of green spaces and infrastructures and promoting the use of NBS for improving the living conditions within an urban area has to be pursued actively (p.13) ➤ NBS (including GI) not yet sufficiently used in cities (p.14) ➤ Mentioning and acknowledgement of existing documents concerning GI and NBS (p.15-17) 	Other / Acknowledgements

Table 14: Proposed changes in norms, Case 1 (Own research based on EU Ministers Responsible for Urban Matters, 2016)

Possible influence on other dimensions

The partnership presents that it aims at making the use of NBS the norm within urban development. However, most of these proposed changes in norm can only be achieved through action within the other dimensions. These are mostly already presented in the previous paragraphs. Nonetheless, a change in norms is important to showcase the will behind actions within the other dimensions. While access to more knowledge and incorporation within legislations are methods of implementation, change within norm is important to change the motivation. A bias towards existing solutions can hardly be overcome without a change of norm.

Changes of norms are an important step to further institutionalisation of a discourse. The partnership acknowledges certain changes that are needed, mostly concerning NBS. Nonetheless, changes in norms concerning NBS could include Green Infrastructure or at least expand the discourse of NBS towards that of GI.

Proposed changes in values

The partnership presents the use NBS and GI not as a goal but as a method to achieve a higher goal, namely liveable compactness in cities. The main change concerning the values regarding GI and NBS is the mention of the public health gains that are associated with UGI, and the WHO's recommendation of access to public green space within maximum 300m for citizens.

Other than that, the partnership does not show much that might have an influence concerning values.

Proposed changes in values	Action
➤ Rather consume new land than increasing density of a specific settlement if optimal levels of green area & ecosystem services for inhabitant can not be ensured. (p.21)	Action 1
➤ Underused spaces present opportunities for new development including green and blue infrastructure (p.31)	Action 3
➤ Naming of example that scientific evidence shows public health gains associated with urban green infrastructure, highlighting the rationale behind WHO's recommendation that citizens should have access to public green space within 300m maximum distance. (p.58)	Action 9
<ul style="list-style-type: none"> ➤ Problems concerning environmental issues are named, showing that that they are valued. (p.11) ➤ Transition to green, compact, resilient and energy-efficient cities has the capacity to make a key contribution to sustainable growth. (p.11) ➤ Reduced biodiversity, increased greenhouse gas emissions are a concern. (p.11) ➤ Green and blue infrastructure as pertinent themes for partnership (p.13) ➤ Improvement of existing infrastructures/new infrastructures for resilient cities, which applies to the implementation of GI and NBS is to be addressed later by the partnership → less important than other issues at the moment (p.15) ➤ Ensuring efficient and sufficient green spaces (...) to make them more liveable to achieve liveable compactness (p.19) ➤ "NBS increasingly recognised as appropriate tool for efficient city management and ensuring good quality of life in cities." (p.61) 	Other / Acknowledgements

Table 15: Proposed changes in values, Case 1 (Own research based on EU Ministers Responsible for Urban Matters, 2016)

Possible influence on other dimensions

As not much can be found concerning the values regarding GI within the Action Plan, there is not much influence on other dimensions there. However, the value of UGI contributing to public health might have an influence on Actors, that value the health of their citizens highly and might transition it from a value to a norm.

6.1.3. Conclusion

The partnership does include Green Infrastructure and even Urban Green Infrastructure within its Action Plan. However, the grade is not very high. UGI is included mainly within one action, concerning the creation of indicators and common target. GI is mostly taken into account concerning action aimed at other topics.

Within the Action Plan, the terms GI and NBS are clearly defined at the beginning, while their relation is just briefly mentioned. In the eyes of the partnership GI is just one element of NBS. This coincided with the hierarchy proposed earlier in this thesis, where NBS is a broader term while GI is more specific, focussing on the connection of NBS.

Considering that therefore every mentioning of NBS could indirectly imply GI, it is included to a certain degree.

While the term GI itself might not be included a lot within the Action Plan, there is quite a lot of influence the Partnerships Action Plan might have on the institutionalisation of the discourse of GI. However, all possible influences are presented under the assumption that the term NBS includes GI, as it is seemed to be used comprehensively for a number of nature-based solutions. In general, the Action Plan seldom states specific examples of what is to be understood as a nature-based solution. This leaves a broad interpretation of what can be counted as NBS but also as GI.

The partnership proposes a number of actions that overall strive to make NBS and GI more present. This includes formal and informal legislations but mostly the presence within the mind of people. Via increasing access to knowledge and information about funding sources for NBS, the status of NBS within the public and politician's minds can increase. The bias towards existing solutions, that are often less sustainable but more costly, might be overcome, at least in some places.

A better understanding of the concepts NBS and GI seems necessary to further enhance the institutionalisation of the discourse. Therefore, a simplification of language and the standardisation of vocabulary could play a big role in it.

Overall, while Green Infrastructure is not found much as a term throughout the Action Plan, it is woven into a number of actions. According to partners, Green Infrastructure was part of the conversation, just not a priority during this process. Nonetheless, as seen by the development of the Urban Agenda itself, small steps are important to achieve a long-term goal. So, while the presence of UGI was overshadowed by other issues and solutions within this partnership, it was still present and represented.

While the direct results might not show much progress for the institutionalisation of the discourse, a step forward was taken, nonetheless. The presence of GI within legislations and the mind of actors were pointed out as important. Consequently, it can be assumed that in the future the discourse of UGI will rise higher on the list of priorities of actors concerned with urban areas and urban issues.

6.2. Case 2 – Partnership Climate Adaptation

Case 2 is concerned with the partnership Climate Adaptation. As mentioned before, in a first step the presence of the discourse of UGI is addressed, followed by the analysis of the contribution of the partnership to the institutionalisation of the discourse of UGI. Lastly, a conclusion is drawn.

6.2.1. Presence of the discourse of UGI

The following (sub-)chapter is again dedicated to answering the first part of the research question, of how well GI is integrated into the Urban Agenda. Here the final Action Plan was analysed concerning the amount and grade of GI (in relation to the hierarchy) into the Actions of the Action Plan.

Definitions

Other than Case 1, this partnership did not define any terms related to GI or in any way related to problems or solutions addressed in the Action Plan.

Grade of integration

The Partnership has a different division of their Actions than Case 1. The working groups of this partnership were focused on the themes governance, knowledge and resources, reflecting the themes of the Pact of Amsterdam, better regulation (R), better knowledge (K) and better funding (F).

The Actions are therefore also divided into these three themes.

Action	Solution	Hierarchy	Comments
R1	Analysis of national regulations with focus on CA	Taking into account	UGI mentioned in a sub-sentence. TEN-G strategy mentioned
F1	Develop guidelines and tools for early in-house CRVA	Taking into account	GI mentioned in sub-sentence
F2	Recommendations for Ops of ERDF	-	-
F3	Better access to LIFE funding	-	-
K1	Improving knowledge of C3S	-	-
K2	Enhancing local content of Climate-ADAPT	-	-
K3	Political training on Climate Adaptation	-	-
K4	Enhancing stakeholder involvement at regional & local levels	-	-
K5	Promote open access of insurance data for climate risk management	-	Mentions the Green Paper & EU Adaptation Strategy
K6	More engagement of national & sub-national government's associations to support local authorities	-	-

Table 16: Overview over actions and solutions, Case 2 (Own research based on Climate Adaption Partnership, 2018b)

The table shows that Green Infrastructure was not directly included in any Actions. In only two of them (R1 & F1) GI is mentioned in a sub-sentence, as a little detail. Both times it was added to the final version of the action plan and did not appear in the draft version.

The TEN-G network (Trans-European Network for Green Infrastructure) is mentioned in Action R1 as part of the section about existing EU policies/regulations/instruments. Action R1 also involves the analysis of “*all available regulation of urban development and planning process and documents (urban development strategies, land use plans etc.) in the context of European and national adaptation planning, such as sustainable energy and climate action plans, green infrastructure plans etc.*” (Climate Adaption Partnership, 2018, p. 24).

Deceiving initial expectations, that is the total extend that GI in any form of its hierarchy is directly mentioned or addressed within this partnership.

However, the Action Plan names a sub-set of bottlenecks that were identified by the partnership throughout their work, but which are not directly addressed in the Action Plan. They are described as to be tackled in subsequent work of the Partnership. This includes the following bottleneck: “*The lack of knowledge and understanding on the role and importance*

of biosphere, ecosystems and green infrastructure in urban adaptation to climate change (Climate Adaption Partnership, 2018b, p. 19).

This shows that, while Green Infrastructure is not directly addressed within the Action Plan, it is present in the mind of the partners.

However, the lack of definition of the terms of Green Infrastructure and Nature-based Solutions leaves the reader not knowing what the partnership's understandings of these terms are.

6.2.2. Institutionalisation of the discourse

The following is dedicated to answering the second part of the research question about the influence of the Urban Agenda of the EU on the institutionalisation of the discourse of Green Infrastructure.

Therefore, the Policy Arrangements Approach is used, to identify proposed changes within the four dimensions (rules of the game, actors, resources, discourse) and the influence these changes might have on the other dimensions.

As the previous chapter already showed, GI is hardly represented within the partnerships Action Plan. Therefore, not much influence on the institutionalisation of the discourse of Green Infrastructure can be expected.

Rules of the game

For the dimension of the rules of the game, proposed changes in formal legislations and other formal rules were chosen.

Proposed changes in formal legislation

Concerning GI or even NBS, the partnership does not propose any changes within formal legislation.

Possible influence on other dimensions

As nothing regarding GI or NBS is proposed, there is no influence on other dimensions.

Proposed changes in informal rules

The Partnership proposes the collection and analysis of all available regulation of urban development, planning process and documents in the context of European and national adaptation planning. Hereby the example of green infrastructure plans is made. Afterwards, conclusions, suggestions and selections of case studies are proposed to be made.

Proposed changes in informal rules	Action
➤ Collect and analyse all available regulation of urban development and planning process and documents in the context of European and national adaptation planning, such as green infrastructure plans etc. (p.24)	Other

Table 17: Proposed changes in informal rules, Case 2 (Own research based on Climate Adaption Partnership, 2018b)

Possible influence on other dimensions

The focus of this partnership lies on climate adaptation, and the specific criteria and indicators for the analysis are not named but to be developed in a first stage. Therefore, it is unclear to what extend and in what way GI might be included here. However, if included, the information collected through this action might have an influence on the dimensions of knowledge, depending on the information.

Actors

For the dimension of actors, the indicators actors taking part, proposed interaction and proposed roles were chosen.

Actors taking part

The partnership does not propose anything specific to the actors taking part that is directly concerned with GI or NBS.

Possible influence on other dimensions

As nothing is proposed here, there is no influence on other dimension either.

Proposed interactions

No interactions that are directly related to GI or NBS are made by the partnership.

Possible influence on other dimensions

No proposed action led to no possible influence on other dimension.

Proposed roles

Within the Action Plan there are not specific roles proposed that are directly related to GI or NBS.

Possible influence on other dimensions

As there are no roles proposed, there is, again, no influence on other dimensions noticeable.

Resources

For the dimension of resources, changes in access to finance and knowledge were chosen as indicators.

Changes in access to finance

The partnership acknowledges that difficulties in combining resources from different sources exist. Their conclusion is that a strong coordination between different departments or entities is needed. However, the partnership does not propose any solutions for this problem. Additionally, the partnership does acknowledge that there are financial barriers to attract private investors to modernise sustainable and green urban infrastructure. However, the partnership admits that they, at least currently, do not know which measures are required at national level to overcome these barriers.

Changes in access to finance	Action
<ul style="list-style-type: none">➤ Partnership does not know which measures are required at national level to overcome financial barriers to attract private investors to modernise sustainable and green urban infrastructure. (p.23)➤ Acknowledges difficulties in combining resources from different sources. Leads to the need of strong coordination between different departments or entities. (p. 77)	Other / Acknowledgements

Table 18: Changes in access to finance, Case 2 (Own research based on Climate Adaption Partnership, 2018b)

Possible influence on other dimensions

While not proposing any actions, the partnership acknowledges some problems related to GI. Even though this does not directly lead to actions, it could open up discussion, spread awareness about these problems to more actors, who might start to look for solutions.

Changes in access to knowledge

The partnership proposes to analyse good practices and existing methodologies that deal with the economic analysis of climate adaptation. The focus lies on the early in-house assessment of costs of climate adaptation actions to help with the decision making. The aim is to develop guidelines and tools to infrastructure investments which include green infrastructure in the urban context.

Changes in access to knowledge	Action
➤ Analyse existing methodologies and good practices regarding the economic analysis of climate adaptation and develop these to infrastructure investments including green infrastructure in the urban context. (p.27)	R1
➤ Collect and analyse all available regulation of urban development and planning process and documents in the context of European and national adaptation planning, such as green infrastructure plans etc. (p.24)	Other / Acknowledgements

Table 19: Changes in access to knowledge, Case 2 (Own research based on Climate Adaption Partnership, 2018b)

Possible influence on other dimensions

A collection and analysis of existing methods and good practices brings information together. Guidelines can help actors to better understand and navigate climate adaptation planning concerning the factors of costs. The partnership explicitly mentions the inclusion of UGI in its text, which could strengthen the standing of GI within decision making. More knowledge on the navigation of costs within the climate adaptation planning and especially the use of UGI could help normalising and mainstreaming its use.

Discourse

For the dimension of the discourse the indicators official definitions (as defined by the partnership), other forms of definition, norms and values were chosen.

Official definitions

The Partnership does not define the term Green Infrastructure nor the term Nature-based Solutions or any other related term.

Possible influence on other dimensions

As the partnership does not define the terms it is not clear what their understanding of the terms is. Therefore, no direct influence on other dimension is noticeable. However, it also leaves the reader to educate themselves to understand the terms Green Infrastructure and Nature-based Solutions. This could on the other hand lead to more actors concerning themselves with the concepts.

Other forms of definitions

The partnership does not explain in any way or at any point throughout the Action Plan what the term Green Infrastructure means.

Possible influence on other dimensions

As no other forms of definition of the term Green Infrastructure is present within the Action Plan there is no influence on other dimensions here.

Proposed changes in norms

The partnership acknowledges and mentions the EU strategy promoting GI investments and the creation of TEN-G. They also acknowledge that there is a lack of knowledge and understanding on the importance and role of ecosystems, biosphere, and GI in the urban adaptation to climate change. These statements are made in connection to important issues that the partnership wants to address later. It is therefore, even though shortly, presented that GI is not yet a norm, but in the eyes of the partnership should be more mainstream.

Proposed change in norms	Action
<ul style="list-style-type: none">➤ Acknowledgement of the lack of knowledge and understanding on the role and importance of biosphere, ecosystems, and GI in urban adaptation to climate change. (p.19)➤ Acknowledgement of EU strategy promoting green infrastructure investments and creating TEN-G.	Other / Acknowledgements

Table 20: Proposed changes in norms, Case 2 (Own research based on Climate Adaption Partnership, 2018b)

Possible influence on other dimensions

The mention of a lack of knowledge could lead to actions to improve this knowledge. However, actors need to be identified, or identify themselves, to go into action to lead to actual changes.

Proposed changes in values

The Action Plan does not address Green Infrastructure or Nature-Based Solutions in any way that statements concerning its value can be made, even less concerning any proposed changes in values.

Possible influence on other dimensions

Green Infrastructure or Nature-based Solutions are not highly present within the Action Plan. A reason can be that the priorities of the partners were on other issues or solutions. While the mention of it shows that the discourse of GI is given some value, it seems to be not very high, at least compared to others. Therefore, no influence on other dimensions can be seen.

6.2.3. Conclusion

Other than expected, the partnership Climate Adaptation does not focus on Green Infrastructure nor Nature-based Solutions. A first indicator is that neither of the terms are defined. Throughout the Action Plan GI and NBS are briefly addressed, mostly by acknowledging the existence of EU strategies or the lack of knowledge concerning the concept.

A reason for the lack of inclusion might be given in the beginning of the Action Plan, where the lack of knowledge concerning GI is presented as an issue that the partnership wants to focus on later. The discourse of Green Infrastructure is therefore acknowledged and briefly addressed but not given priority.

The low grade of inclusion is also visible when looking at the second part of the research question. Not much is proposed regarding GI, therefore not much influence on the discourse and therefore its institutionalisation can be distinguished.

However, a little bit could still be possible. The partnership proposed guidelines to the economic assessment of climate adaptation procedures, therefore aiming at improving knowledge for decision making. While this is still quite broad, the partnership explicitly mentioned the inclusion of GI in urban areas.

Overall, the field of climate adaptation in cities and urban areas is quite broad. The focus of the partnership was, in line with the aim of the Urban Agenda, on improving regulations, funding and knowledge. It seems that the partnership chose to focus less on specific solutions of climate adaptation, such as Green Infrastructure, but at certain means of implementation, such as specific funds or projects. These projects and funds are often cross-cutting, bringing a variety of solutions together. Therefore, while not directly including Green Infrastructure within the Action Plan, the impacts of actions might have long-term effects on the discourse of Green Infrastructure and its institutionalisation. Improved economic adaptation for adaptation projects (Action F1) can for example facilitate the incorporation of Green Infrastructure in such projects.

It is therefore difficult to come to concrete conclusions concerning the enhancing effects this partnership can have on the further institutionalisation of the discourse of Green Infrastructure.

6.3. Comparison of cases

When comparing the two cases, major differences are evident. The partnership Sustainable Land-Use and Nature-based Solutions allows for comprehensive answers to the research question. The partnership Climate Adaptation on the other hand provides an answer by its minimal content regarding Urban Green Infrastructure.

The partnership SLU&NBS is focussing partly on better regulation, better knowledge, and better funding in regard to NBS, partly on sustainable land use. The partnership CA is focussing on Climate Adaptation, a very broad field. The Urban Agenda proposed the themes of the partnerships, aiming at links between the partnerships but not repetition. Therefore, it is understandable that one of the partnerships included GI and NBS to a higher extend than the other.

The partnership SLU&NBS provides an overview of what Green Infrastructure and NBS are in their eyes by defining the terms in the beginning. Throughout the text both terms are briefly brought in relation, making GI a part of NBS. This leads to the conclusion that anytime the term NBS is used throughout the Action Plan, it might indirectly imply GI. This would be in line with the previously introduced hierarchy of Urban Green Infrastructure. NBS is present largely within the Action Plan, mostly regarding the improvement of distribution of knowledge via guides and the simplification of the language, aiming to make the concepts of NBS and GI more easily understandable and accessible for the public as well as decision makers. The proposed actions in the Action Plan of the Partnership SLU&NBS can have quite an influence enhancing the institutionalisation of the discourse of GI. Direct influence might the increasing inclusion of GI and NBS have within EU legislations. A more indirect influence can come from the increase of knowledge concerning NBS and GI. This increase in knowledge can have a major influence on expanding the discourse to more people and spreading awareness as well as information about it. Additionally, GI and NBS are proposed to become more mainstream solutions rather than special solutions. The thought of implementing NBS rather than grey solutions is strived to become the norm. A major step is not only spreading awareness but also overcoming the bias towards existing grey solutions that might be easier and cheaper, at least initially, but less sustainable. While the Partnership does not directly push for these changes concerning GI, it might have a significantly effect on enhancing the institutionalisation of the discourse of GI.

Compared to this, the Partnership CA does not include Green Infrastructure, nor does it add much to the institutionalisation of the discourse of GI.

GI is only briefly included within the Action Plan, mainly by mentioning a lack of knowledge in the understanding of its role within climate adaptation in urban areas. It is, however, not completely dismissed, but rather postponed as an issue that the partnership wants to address later.

Considering the lack of inclusion, the Partnership does not contribute much to the institutionalisation of the discourse of GI.

Considering that the Urban Agenda wanted to avoid repetition and rather that the individual partnership focussed on individual topics, it is not surprising that one partnership includes the concepts of GI and NBS and contributes to the institutionalisation of the discourse more than the other.

7. Conclusions & Recommendations & Reflections

In this concluding chapter conclusions are drawn while summarising the answers to the research questions. Additionally, recommendations are given as well as a reflection on the research methodology.

7.1. Conclusions

This thesis aimed at answering the research question of how well the concept of Urban Green Infrastructure is integrated into the Urban Agenda of the EU and how the Urban Agenda of the EU enhances the institutionalisation of the new discourse of UGI.

It can be concluded that throughout the whole work of the Urban Agenda the concept of UGI is not included widely. From 12 partnerships two were taken into further account to analyse the presence of GI. Based on a word count regarding Urban Green Infrastructure related key words, the partnerships Climate Adaptation and Sustainable Land-Use & Nature-based Solutions were selected for further analysis. That analysis showed that only one of these actually addressed GI or even UGI directly. While the Partnership Climate Adaptation mentioned GI briefly as something that should be addressed, it was not deemed a priority within the Action Plan but postponed to a later point in time.

The Partnership SLU&NBS on the other hand addressed NBS, GI and UGI directly. NBS and GI were given definitions and were later brought into perspective. Regarding Actions however, NBS was favoured. This is understandable as NBS is described as a broader term, where GI is named to be just one element of. GI itself was mainly addressed in terms of taking it into account while implementing actions concerning NBS. This mostly involves the creation of guides for the better understanding and navigation of financing NBS and brownfield redevelopment as well as managing under-used land. Concerning the raising of awareness of NBS, GI is also directly mentioned as to be taken into account. UGI itself is addressed in Action 9, via the proposal of agreeing on common targets and indicators for, inter alia, UGI to bring standards across scale and geography.

The Urban Agenda is likely to enhance the institutionalisation of the relatively new discourse of UGI. While only a fraction of the whole UA, in form of the partnership SLU&NBS, might have an influence, it can have an effect, nonetheless. However, it needs to be assumed that, when the term NBS is mentioned, GI and UGI are indirectly addressed as well. The partnership does not go into detail concerning specific solutions that are part of Nature-based Solutions but uses it more generally. As a part of NBS, GI could be considered as the appropriate solution anytime. The fact that Green Infrastructure is named specifically at times shows that it was part of the conversation during the process of the Urban Agenda.

Many actions aim at improving knowledge, the access to knowledge or raising awareness. This is an important step as one of the main issues concerning the institutionalisation and implementation of GI is a lack of awareness and understanding of the concept and its discourse. Increased knowledge can always have an influence on actors receiving the knowledge, as it expands the discourse to more people or deepens the knowledge of actors about the discourse, allowing them to take part, spread and solidify the discourse. More knowledge can also lead to a change in values and norms, mainstreaming the discourse and pathing the way for UGI to become a more standard solution. At the same time, raised awareness and increased knowledge can lead to more inclusion into formal and informal legislation manifesting the rules of the game. Increased knowledge and awareness can also help to overcome the bias of a variety of decision makers that favour initially cheaper,

already existing and well-known but grey solutions over nature-based solutions, regardless of possible long-term benefits. Increased awareness and understanding of the discourse can also lead to more engagement and interest by the public. Actors of the civil society could get easier access to the discourse and take part themselves. Not only could this lead to more local and public projects but also influence the views and values of the public in terms of acceptable solutions implemented by local authorities. The acceptance or rejection of public projects can have an effect on the institutionalisation of a discourse as well.

It took nearly two decades from an initial thought that urban areas are important, to the actual adaption of the UA, including several documents and discussion to further institutionalise the urban discourse. Several steps were taken to get to the point we are at today, where cities and urban areas are crucial to be taken seriously. The same could apply for Green Infrastructure and Nature-based solutions. From an initial emergence to a mainstream discourse several steps must be taken, and it will take time. But every step counts. So even though Green Infrastructure is currently not high on the agenda of the Urban Agenda of the EU, it is present. Even though small, a variety of effects can come from the UA, the enhancement of the institutionalisation of the discourse if UGI might not be great initially, but it can be in the long-term.

7.2. Recommendations

Via this research I wanted to show what can be possible and call for attention to the potential such projects as the Urban Agenda can have on the discourse of Urban Green Infrastructure. The Urban Agenda strives to formally include Green Infrastructure more in EU legislations, especially those related to urban areas and urban issues. It is noticeable that the majority of UGI related proposals within the Urban Agenda were addressing the improvement of knowledge, whether it was the understanding of the discourse itself or the means of its implementation, for example better access to funding. Throughout this research it became apparent that knowledge concerning the discourse of Urban Green Infrastructure is an important point that should be focussed on further. A major issue regarding Urban Green Infrastructure is that it is not easily graspable what is to be understood by that term. Everyone might define it differently for themselves, and if this is not addressed it might lead to misunderstandings. It can also be dissuasive if it is too complicated to understand, turning people to easier understandable and implementable solutions.

For practice I would therefore recommend keeping the focus within the discourse of Urban Green Infrastructure on spreading and increasing knowledge and awareness of the discourse. A long-term aim should in my opinion be to mainstream Green Infrastructure and Nature-based Solutions so that they are a normal part of an urban planner's toolbox and easily to implement. While this is probably an aim that is still far away it should be kept in mind. Scientific literature and a variety of projects tend to focus on finding new methods and solutions for nature-based solutions and Green Infrastructure. While this is a great aspiration, it should not be forgotten to normalise these methods and to make them accessible, concerning knowledge and awareness, financing, and bias.

This research has shown that despite the limited incorporation of the discourse of UGI a variety of impacts are possible to occur. However, it is still unclear whether these impacts will come into effect. Nonetheless, it would be interesting to see what changes will actually be made. I would therefore recommend to continue research in this direction. Interesting questions could be whether these proposed actions will be implemented and whether the

implementation actually enhances the further institutionalisation of the discourse of UGI. It could be measured whether the actual effects are comparable with the potential effects concluded with this research.

7.3. Reflection on methodology

This thesis is aiming at filling a gap in academic literature concerning the institutionalisation of the discourse of Green Infrastructure in urban areas. To fill this gap specific attention was given to an international project that is aiming at enhancing the position of urban areas within EU policy making and the potential influence this project can have on the institutionalisation of Urban Green Infrastructure. The research question is split into two, first focussing on the presence of UGI within the Urban Agenda of the EU and secondly on the influence this can have on the further institutionalisation of the discourse.

The Urban Agenda of the EU consists of twelve individual partnership, each with their own operation. This presented twelve different cases that could be analysed in detail. Focussing on two proved to be helpful. For one, it would have exceeded the range of this thesis to analyse all twelve partnerships in detail. Secondly, considering the results of Case 2 it could be assumed that the findings of the other partnerships would have been similarly limited. The document analysis has been very useful, especially to answer the first part of the research question. A few interviews and answers to a questionnaire were given by some partners of the partnerships. However, more interviews would have been helpful to shed more light on the reasoning for the limited integration of UGI. Unfortunately, it did not work out to get more feedback from the partners. Furthermore, it was not possible for me to get further information on the working process of the partnerships, such as minutes from meetings. This would have helped to gather more additional information on the reasoning for the focus of the partnerships and the limited focus on Urban Green Infrastructure within the Urban Agenda. The use of a hierarchy to analyse the presence of Urban Green Infrastructure has shown to be useful in two ways. For one it helped to get a better understanding of the dimensions and levels of Urban Green Infrastructure and its relations to other frequently used terms, such as Nature-based Solutions. Furthermore, it can be seen as a contribution to the discourse of Urban Green Infrastructure. Secondly, it allowed for a more comprehensive analysis of the presence of UGI. The different levels of the hierarchy help to differentiate different degrees of integration, which broadened the scope of what could still count as UGI.

The Policy Arrangements Approach (PAA), distinguishing four dimensions of a policy arrangement, enabled us to develop indicators for changes proposed within the Action Plans of the partnerships. These proposed changes are a first, important step towards the further institutionalisation of the discourse of UGI. As the four dimensions are interrelated the PAA also enabled us to explore how proposed changes in one dimension may include changes in either one or more of the other dimensions. This produced insight in how the Urban Agenda may contribute to the further institutionalisation of the discourse of Urban Green Infrastructure. Only in a couple of years from now we can research to what extent the proposed changes have actually been implemented. This is an important topic for further research.

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