



**The emergence and evolution of Green Infrastructure  
planning in North West England:  
a policy arrangement approach**

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## Summary

In recent years, the term „Green Infrastructure” (GI) has gained popularity in academic and policy debates throughout Europe and the United States. In Europe, GI is commonly understood as a network of interconnected green features which provides multiple functions and benefits and is to be protected or developed. However, the academic community remains divided about the main objective of GI and its added value in relation to older concepts. A rift has developed between academic disciplines, as some consider GI as a landscape-level concept to support habitat conservation and species migration, while others view it as an urban-scale tool to promote issues ranging from quality of life and recreation to climate change adaptation and biodiversity protection. The current debate often approaches GI as a neutral scientific concept rather than as a tool for practise which is filled with meaning by certain actors and employed in a specific political, institutional and regulatory context. This thesis identified the dearth of critical assessments of the concept’s added value and its position in a larger political context as a major weakness in the current debate.

Although crucial issues remain unresolved in academic literature, GI has been placed on the political agenda in Europe: In the UK, GI has been embedded in local, regional and national planning documents over the past decade. In 2013, the European Commission has published a GI Strategy, endorsing GI as a means to increase ecosystem connectivity and safeguard their services, while addressing climate change mitigation and adaptation. Consequently, GI has entered political debates in the Member States, which may be tempted to build on the academic and practitioner expertise which has already been developed in the UK. This thesis hypothesised that for other countries to benefit from the UK’s experience with GI planning, the context in which it emerged and evolved must be clearly understood. Against this backdrop, a case study of GI planning in North West England was performed to highlight how contextual constraints and opportunities have shaped the concept. The analysis was guided by the Policy Arrangement Approach, which is used to characterise the content and organisation of a certain policy field, such as GI, by describing its underlying actor constellations and power dynamics, policy discourses and rules. The case study was examined from three perspectives: Firstly, the actors advocating GI planning in North West England as well as their power relations were identified. Secondly, the current GI discourse in the region was outlined, drawing parallels to overarching discourses relating to political ideology as well as to the role of the environment and sustainability in policy and planning. Finally, the framework of rules in which GI planning is embedded was characterised, exploring the influence of the UKs planning system, modes of governance and funding mechanisms. Through this analysis, the thesis sought further understanding of GI as a context-dependent instrument and enable actors in other countries to assess the strengths and weaknesses associated with North West England’s approach to GI planning more clearly.

The thesis found that GI planning in North West England was driven primarily by the activities of the region’s Community Forests, which were initially established in the 1990s to regenerate derelict landscapes in the vicinity of cities through afforestation. By the 2000s, large-scale landscape restoration was no longer in demand and Community Forests diversified their work programmes in an attempt to secure their continued existence and funding base. In North West England, Community Forests became particularly involved in GI planning, establishing regional stakeholder networks and lobbying for the concept’s inclusion in regional strategies and programmes. As a result, GI was embedded in North West England’s Spatial and Economic Strategies as well as in informal guidance and programmes. North West England’s Regional Development Agency in particular embraced GI, devoting considerable resources to develop the concept through programmes and scoping studies. These activities highlighted the economic benefits of GI and how these could complement the region’s ambitions for growth and competitiveness. The adoption of the GI approach in the region may be explained by the fact that Community Forests lobbied for the concept at a time when regional strategies were drafted for the first time. Recognising the mission of the Regional Development Agency, they deliberately hitched key messages

about GI to a storyline of growth and competitiveness. Moreover, the importance of environmental improvements to raise the region's attractiveness and attract investment had been recognised by the Regional Development Agency even before the rise of the GI concept, as landscape regeneration initiatives had already been initiated in cooperation with Community Forests.

An analysis of GI strategies published between 2010 and 2015 in Manchester, Greater Manchester, Liverpool and the Liverpool City Region found that the GI discourse in North West England remains closely entwined with economic growth and urban regeneration goals. GI strategies primarily emphasise GI's potential to raise the locations' competitiveness and attractiveness, framing the environment as a storehouse of resources or commodity for local communities by emphasising its socio-economic functions and benefits, rather than its intrinsic value. While the term 'GI' is relatively new, the discourse employs similar storylines as green branding strategies, which have gained popularity in European cities since the 1990s. Like GI strategies, they depict the environment primarily as an asset to improve their green image, boost economic success and gain international standing in the global competition between cities.

GI strategies call on partnerships between public, private and community actors to take on responsibilities for the creation and maintenance of GI and seek to persuade various stakeholders to take voluntary action. This marks a clear departure from traditional greenspace management and can be linked to the political ideology of the New Labour and Conservative-Liberal Democrat Coalition administrations of the 2000s and 2010s. New Labour sought to strengthen intersectoral and multi-level cooperation as well as partnership approaches as part of its spatial planning approach. Broad, unifying storylines and concepts were embraced to bring stakeholders to the table and align competing interests. Like other discourses of this era (e.g. sustainable development), the GI discourse reflects the philosophy of ecological modernisation, which suggests that there is no conflict between environmental protection and economic growth. In keeping with ecological modernisation's win-win rhetoric, opportunities to align GI interventions with economic goals are highlighted while tensions between economic, social and environmental goals are generally not acknowledged. Instruments based on the UK's ecological modernisation approach generally rely on voluntary commitments rather than legislative regulation and sanctions. This becomes apparent in GI strategies which encourages actors to take voluntary action rather than setting out formal requirements. Although the Conservative-Liberal Democrat Coalition reversed many of New Labour's planning reforms, it was equally keen to encourage partnership approaches, which were viewed as an opportunity to increase the role of community groups and private actors while reducing interference of the public sector.

However, the emphasis on partnership approaches for the delivery of GI goals reflects not only dominant ideologies about the appropriate modes of governance; Such partnerships are also a pragmatic response to shrinking local budgets, which make new delivery mechanisms indispensable. As the GI debate is closely linked to urban regeneration, negotiating financial contributions to GI with developers is a popular option to fund GI measures in times of austerity. Negotiations to determine the amount of developer's financial contribution to infrastructure expansion and other contributions are deeply rooted in UK planning tradition. Employing the term 'infrastructure' in its name, GI can be interpreted as a bid to gain access to such funds. Other advocated funding mechanisms include private sponsorship, the sale of public land or increased community involvement.

This thesis demonstrated that GI planning in North West England must be seen in the context of the UK's long legacy of neoliberal policies as well as more recent deregulatory policies and budget cuts to public authorities. Consequently, it has become increasingly difficult to promote environmental interests through formal planning mechanisms, while expenditure on greenspaces is hard to justify in times of austerity. GI's success in North West England may be explained by its ability to communicate the value of environmental measures using mainstream economic concepts and values which have more traction with politicians and stakeholders outside the environmental field. The GI concept introduced an additional economic (and social) argumentation for the protection of greenspaces to encourage additional

actors to take action as well as to access new sources of funding, reducing pressure on the dwindling budgets of local authorities. The GI concept neither seeks to challenge business as usual politics and economy nor demands radical changes to current forms of neoliberal governance; instead, it highlights opportunities to align environmental measures with socio-economic goals. GI planning is promoted as a consensus-based form of planning in which economic, ecological and social improvements reinforce each other, making it palatable to politicians and stakeholders beyond the environmental field.

However, environmental interests remain ideologically and politically peripheral to conventional economic goals. In a bid to appeal to decision-makers and private actors, the GI discourse frames environmental measures primarily a means to boost the tax base. This is problematic as decision-makers seeking to realise economic growth targets are likely to cherry-pick those GI measures with the greatest economic impact, such as flagship projects in prestigious locations, rather than those with the greatest ecological value. Equally, private actors' predominant concern with economic outcomes means that GI interventions are likely to be designed to raise property values rather than to create valuable ecosystems.

Consequently, this thesis cautioned against adopting a GI approach modelled after North West England's experience in countries with well-established landscape planning systems or other instruments to safeguard environmental interests. The UK has no planning instrument for nature conservation which can be compared to the German system of landscape planning and GI strategies have limited political weight, merely encouraging voluntary action rather than setting out formal requirements. Mirroring North West England's GI approach would therefore weaken the standing of environmental interests in the planning process. However, in planning systems or sectors not currently recognising the value of green-space in relation to other land uses, the GI concept may offer an entry point to generate positive attention for environmental issues and introduce them into decision-making processes. As GI's strength lies in providing additional arguments for environmental measures in quantifiable and monetisable terms, the concept may be employed as an add-on to formal planning instruments in various contexts. As a means of communication, it may be strategically employed to secure funding or to encourage the involvement of additional actors. However, policy-makers should be aware that the inclusive win-win rhetoric of GI may obscure conflicts between economic, social and environmental goals and take decisive action to ensure that all dimensions are considered in practise.

## Zusammenfassung

Sowohl in wissenschaftlichen wie auch in politischen Debatten hat der Begriff "Grüne Infrastruktur" (GI) in jüngsten Jahren an Popularität gewonnen. In Europa wird GI vorrangig als Netzwerk verbundener Grünflächen verstanden, das einerseits mehrere Funktionen und Leistungen erbringt und andererseits gezielt geschützt oder weiterentwickelt werden muss. Nichtsdestotrotz bleiben das Hauptanliegen des Konzepts und sein Mehrwert im Vergleich mit älteren Ansätze unklar. Hier tut sich eine Kluft zwischen wissenschaftlichen Disziplinen auf: Während GI in manchen Disziplinen als Ansatz für den Erhalt und die Vernetzung von Lebensräumen auf Landschaftsebene gedeutet wird, wird es in anderen als Planungsinstrument für den städtischen Raum gesehen, das Verbesserung der urbanen Lebensqualität wie auch Anpassung an den Klimawandel und Schutz der biologischen Vielfalt verspricht. In der aktuellen Debatte wird GI häufig als rein wissenschaftliches, wertneutrales Konzept aufgefasst. Wenig Aufmerksamkeit wird hingegen dem Thema gewidmet, wie GI in der Praxis von bestimmten Akteuren instrumentalisiert wird und gezielt in einem gewissen politischen, institutionellen und regulatorischen Rahmen eingesetzt wird. Der Mangel an kritischen Bewertungen des Mehrwerts des Konzepts und seiner Rolle im größeren politischen Kontext wurde im Rahmen der vorliegenden Masterarbeit als wesentliche Schwachstelle der derzeitigen Debatte über GI identifiziert.

Obwohl wesentliche Fragen im akademischen Diskurs ungeklärt bleiben, erfreut sich GI wachsender Beliebtheit in politischen Debatten. In Großbritannien wurde GI im Laufe des letzten Jahrzehnts in Planungsdokumenten der lokalen, regionalen und nationalen Ebene verankert. Auch die Europäische Kommission hat 2013 eine Strategie zu GI verabschiedet, mit der sie das Konzept der GI als Instrument befürwortet, um Ökosysteme miteinander zu vernetzen, Ökosystemdienstleistungen sicherzustellen sowie Klimaschutz und Klimaanpassung zu fördern. Folglich wurden auch in den Mitgliedsstaaten der Europäischen Union Debatten über GI angestoßen. Aufgrund Großbritanniens langjähriger Erfahrung mit GI und der praktischen Umsetzung des Konzepts mag die Orientierung am britischen Ansatz nahe liegend erscheinen. Die vorliegende Arbeit argumentierte jedoch, dass andere Mitgliedsstaaten von Großbritanniens Erfahrungen nur profitieren können, wenn diese vor dem Hintergrund des spezifischen politischen Kontexts betrachtet werden. Anhand des Beispiels Nordwestenglands wurde deshalb aufgezeigt, inwieweit die Verankerung von GI in der Planung von den Möglichkeiten und Grenzen des Kontexts geprägt wurde. Die Analyse folgte einem Policy Arrangement-Ansatz, mit welchem Politikfelder (z. B. GI) anhand von zugrundeliegenden Akteurskonstellationen, Machtverhältnissen, Diskursen und Regeln beschrieben werden. Die Fallstudie wurde folglich aus drei Perspektiven beleuchtet: Erstens wurden die zentralen Akteure identifiziert, die GI als Konzept und Planungsansatz in Nordwestengland vorangetrieben haben und ihre Machtverhältnisse skizziert. Zweitens wurde der vorherrschende Diskurs über GI in der Region dargestellt und Parallelen zu übergeordneten Diskursen über politische Ideologien und die Rolle von Umwelt und Nachhaltigkeit in Politik und Planung aufgezeigt. Die dritte Perspektive widmete sich den Regeln, in die GI eingebettet ist, indem die Besonderheiten des britischen Planungssystems, Formen regionaler und städtischer Governance und Finanzierungsmechanismen für GI beleuchtet wurden. Diese Analyse erlaubte eine Einschätzung der Stärken und Schwächen von Nordwestenglands Planungsansatz für GI, um Handlungsempfehlungen für andere europäische Mitgliedsstaaten abzuleiten.

In Nordwestengland wurde das GI-Konzept entscheidend durch sogenannte *Community Forests* vorangetrieben. Diese wurden in den 1990er Jahren gegründet, um Brachlandschaften in der Nähe von Städten durch Aufforstung zu sanieren. Da die Sanierung großflächiger Landschaften seit der Jahrtausendwende an Bedeutung verlor, wandten sich *Community Forests* zunehmend neuen Aufgaben zu, um ihren Fortbestand zu sichern. In Nordwestengland wurde GI zum neuen Arbeitsschwerpunkt; *Community Forests* vernetzten regionale Akteure und setzten sich für die Aufnahme des Konzepts in regionalen Strategien und Programmen ein. Infolgedessen wurde GI in regionalen Raumordnungs- und Wirtschaftsstrategien wie auch in informellen Leitfäden aufgegriffen. Insbesondere

Nordwestenglands Regionalentwicklungsagentur hat erhebliche Mittel für Programme und Studien aufgewandt, mit denen das Konzept weiter ausgearbeitet wurde. Hierbei standen die wirtschaftlichen Vorteile von GI stets im Mittelpunkt; GI wurde insbesondere als Standortvorteil gewertet, um die Wettbewerbsfähigkeit der Region zu verbessern. Das GI-Konzept konnte sich aus mehreren Gründen als Bestandteil der Planung etablieren: Zum einen setzten sich *Community Forests* stark für das Konzept ein als erstmals regionale Strategien erstellt wurden. In Anbetracht der Interessen der Regionalentwicklungsagentur wurden die Kernaussagen zu GI hierbei aktiv mit Themen wie Wirtschaftswachstum und Wettbewerbsfähigkeit verknüpft. Andererseits hatte die Regionalentwicklungsagentur die Bedeutung von Umweltmaßnahmen für den Erfolg der Region bereits erkannt, bevor das GI-Konzept an Bedeutung gewann und gemeinsam mit *Community Forests* schon ein Programm zur Rehabilitierung geschädigter Landschaften initiiert.

Eine Analyse der Strategien für GI, die zwischen 2010 und 2015 in den Städten und Stadtregionen von Manchester und Liverpool veröffentlicht wurden, zeigte, dass der Diskurs um GI weiterhin eng mit Zielen für Wirtschaftswachstum und Stadterneuerung verflochten bleibt. Die Strategien betonen in erster Linie den Beitrag von GI zum wirtschaftlichen Erfolg des Standortes. Hierbei wird der Wert der natürlichen Umwelt darin beschrieben, dass sie Ressourcen bereitstellt und sozioökonomische Funktionen für die Stadt oder Region erbringt, während dem Eigenwert der Natur kaum Aufmerksamkeit gewidmet wird. Obwohl der Begriff "GI" relativ neu ist, gleicht diese Argumentation denen von Stadtmarketingstrategien, die seit den 1990er Jahren vermehrt darauf abzielen, ein grünes Image zu vermitteln. Wie in Strategien für GI werden Umweltmaßnahmen in Stadtmarketingstrategien als Mittel beschrieben, um wirtschaftlichen Erfolg zu steigern und die Stellung im globalen Wettbewerb zwischen den Städten zu verbessern.

Nordwestenglands Strategien für GI zeichnen sich zudem dadurch aus, dass ihre Ziele durch Partnerschaften zwischen öffentlichen, privaten und gemeinschaftlichen Akteuren verwirklicht werden sollen. Die Strategien zielen darauf ab, unterschiedliche Akteure für freiwillige Maßnahmen zu gewinnen. Dieser Ansatz spiegelt politische Ideologien der 2000er und 2010er Jahre wider, die von New Labour und der konservativ-liberaldemokratischen Koalition vertreten wurden. Um strategische Raumplanung zu stärken, förderte New Labour sektor- und ebenenübergreifende Kooperation. Hierbei wurden vage, vereinigende Konzepte gezielt eingesetzt, um verschiedene Interessengruppen zusammenzubringen. Wie andere Konzepte dieser Ära (z.B. nachhaltige Entwicklung) vertritt GI einen Ansatz ökologischer Modernisierung, der Umweltschutz und Wirtschaftswachstum als sich ergänzende Ziele darstellt. So betonen Strategien für GI, dass Naturschutzmaßnahmen wirtschaftliche Ziele unterstützen, während Spannungen zwischen den wirtschaftlichen, sozialen und ökologischen Zielen in der Regel ausgeblendet werden. Typisch für Konzepte, die dem britischen Ansatz ökologischer Modernisierung folgen ist zudem, dass auf freiwillige Verpflichtungen statt auf gesetzliche Regelungen und Sanktionen gesetzt wird. So werden in Strategien für GI verschiedene Akteure ermutigt freiwillige Maßnahmen zu ergreifen, während keine formalen Verpflichtungen festgelegt werden. Obwohl die konservativ-liberaldemokratische Koalition viele Planungsreformen von New Labour verwarf, befürwortete auch sie Partnerschaftsansätze, die als Chance gesehen wurden die Beteiligung des öffentlichen Sektors zu reduzieren und die Rolle privater und freiwilliger Akteure zu stärken.

Partnerschaftliche Ansätze zur Umsetzung der Ziele für GI sind jedoch nicht nur ideologisch begründet, sondern auch eine pragmatische Reaktion auf leere Haushaltskassen in britischen Städten, die neue Finanzierungsmodelle unentbehrlich machen. Da die Debatte um GI in Nordwestengland eng mit Stadterneuerung verbunden ist, wird insbesondere die Finanzierung über Beiträge von Projektentwicklern und Baurägern als Chance angesehen. Verhandlungen zwischen Projektentwicklern und Kommunen sind ein etablierter Bestandteil des britischen Planungssystems und dienen unter anderem der Festlegung finanzieller Beiträge, die Projektentwickler zum Infrastrukturausbau erbringen müssen. Der gezielte Einsatz des Begriffs ‚Infrastruktur‘ legt nahe, dass GI einen Versuch darstellt, die Aufwendung solcher Mittel auch für Grünflächen zu rechtfertigen.

Diese Arbeit zeigte, dass Nordwestenglands Verankerung von GI als informelles Planungsinstrument vor dem Hintergrund bestimmter Herausforderungen und Chancen gesehen werden muss. Großbritannien ist durch eine lange Tradition neoliberaler Politikansätze geprägt. In jüngeren Jahren wurde das Planungssystem zunehmend dereguliert, während kommunale Haushaltskassen immer knapper wurden. Vor diesem Hintergrund ist es zunehmend schwieriger geworden, Umweltinteressen durch formale Planungsinstrumente zu verteidigen oder Ausgaben für Grünflächen zu rechtfertigen. Die Beliebtheit des GI-Konzepts in Nordwestengland kann dadurch erklärt werden, dass das Konzept den Mehrwert von Umweltmaßnahmen anhand von etablierten ökonomischen Indikatoren kommuniziert, die Politikern und Interessengruppen außerhalb des Umweltsektors geläufig sind. Mit dem Konzept wurde ein zusätzliches wirtschaftliches (und soziales) Argument für Umweltmaßnahmen und Grünflächenmanagement geschaffen, das einerseits Akteure ermutigen kann, freiwillige Verpflichtungen einzugehen und andererseits neue Finanzierungsquellen eröffnen kann, um öffentliche Haushaltskassen zu entlasten.

Das Konzept ist eine pragmatische Reaktion auf den politischen Status quo, in dem wirtschaftliche Interessen im Allgemeinen ökologische Interessen übertrumpfen. GI ist kein Ansatz, der zu radikalen Veränderungen dieser Strukturen aufruft. Vielmehr werden Chancen aufgezeigt, Umweltmaßnahmen umzusetzen, die zugleich sozioökonomischen Zielen dienen. GI wird als konsensbasiertes Instrument dargestellt, um ökonomische, ökologische und soziale Ziele in Einklang zu bringen. Das Versprechen, dass alle von GI profitieren, macht das Konzept attraktiv für Politiker und Interessengruppen jenseits des Umweltsektors. Das GI-Konzept nimmt dabei jedoch in Kauf, dass Umweltinteressen hinter konventionellen ökonomischen Zielen angestellt werden. Um Entscheidungsträger und private Akteure für Umweltmaßnahmen zu gewinnen, werden diese vorrangig als Chance dargestellt, die Steuerbasis zu erweitern. Dies birgt jedoch die Gefahr, dass Entscheidungsträger die Projekte umsetzen, die am meisten zum Wirtschaftswachstum beitragen, wie etwa Vorzeigeprojekte an repräsentativen Orten, und nicht diejenigen mit dem größten ökologischen Wert. Auch private Akteure, wie Projektentwickler, sind vorrangig an der Wertsteigerung ihrer Immobilie interessiert und nicht daran wertvolle Ökosysteme zu schaffen.

Folglich warnte diese Arbeit davor einen GI-Ansatz nach dem Vorbild Nordwestenglands in Ländern mit etablierten Landschaftsplanungssystemen oder ähnlichen Instrumenten zur Sicherung von Umweltinteressen einzuführen. Großbritannien besitzt kein Planungsinstrument für den Naturschutz, das mit der deutschen Landschaftsplanung vergleichbar ist. Als informelle Leitfäden haben Strategien für GI nur wenig politisches Gewicht und schlagen lediglich freiwillige Maßnahmen vor, anstatt bindende Anforderungen zu formulieren. Eine Ersetzung von etablierten Instrumenten der Landschaftsplanung durch Strategien für GI würde somit die Stellung von Umweltinteressen in Planungsprozessen schwächen. In Planungssystemen oder Sektoren, die den Wert von Grünflächen im Verhältnis zu anderen Landnutzungen derzeit nicht anerkennen, kann über GI Aufmerksamkeit für Umweltinteressen gewonnen werden, um diese stärker in Entscheidungsprozesse einzubringen. Das GI-Konzept kann bestehende Planungsinstrumente zudem als Kommunikationsmittel ergänzen. Da das Konzept zusätzliche Argumente für Umweltmaßnahmen bereitstellt und ihren Mehrwert quantifizierbar und monetarisierbar belegt, kann es strategisch eingesetzt werden, um die Beteiligung von Akteuren jenseits des Umweltsektors anzuregen oder um neue Finanzierungsmittel zu erschließen. Nichtsdestotrotz sollten Entscheidungsträger einerseits beachten, dass die inklusive Win-win-Rhetorik um GI möglicherweise Konflikte zwischen wirtschaftlichen, sozialen und ökologischen Zielen verschleiert und andererseits sicherstellen, dass alle Dimensionen in der Praxis berücksichtigt werden.

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# List of Abbreviations

|        |   |
|--------|---|
| AGMA   | Association of Greater Manchester Authorities                     |
| ASCCUE | Adaptation Strategies for Climate Change in the Urban Environment |
| CCAP   | Climate Change Action Plan  |
| EC     | European Commission   |
| EU     | European Union  |
| GI     | Green Infrastructure  |
| GRaBS  | Green and Blue Space Adaptation for Urban Areas and Eco Towns     |
| NENW   | Natural Economy Northwest   |
| NW     | North West  |
| NWDA   | Northwest Regional Development Agency                             |
| NWRA   | North West Regional Assembly                                      |
| PAA    | Policy Arrangement Approach                                       |
| RES    | Regional Economic Strategy  |
| RSS    | Regional Spatial Strategy   |
| TEEB   | The Economics of Ecosystems and Biodiversity                      |
| UK     | United Kingdom  |
| US     | United States   |

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# 1 Introduction

In recent years, the term „Green Infrastructure” (GI) has gained popularity in academic and policy debates throughout Europe and North America (Lennon 2014, Mell 2014). The rising academic interest is documented by a wealth of publications from diverse disciplines, ranging from urban and landscape planning to ecology and environmental management. Nevertheless, academics still seem to be conflicted about the precise nature of GI and its relation to older concepts and instruments in their respective fields (Wright 2011). In Europe, GI is most frequently understood as a network of interconnected green features which supplies various functions and benefits and which is to be protected or developed (EEA 2011, p. 30). However, the term remains ambiguous as some authors interpret GI simply as physical greenspaces on the ground, while others use it as a shorthand for a specific planning approach to safeguard and develop this network of greenspaces (Lennon 2014). Others still describe GI as a more general planning approach to strengthen environmental interests in decision-making processes and encourage cooperation across different planning levels and sectors (Allen 2012, Laforteza *et al.* 2013). It is generally recognised that GI builds upon a range of established concepts and it has been argued that GI should be interpreted as a synthesis of various planning approaches rather than as a completely new approach (Hansen and Pauleit 2014, p. 516). The relative importance of GI’s predecessors, such as ecological networks, greenways or Victorian parks, is ranked differently by each author. Perhaps the most baffling shortcoming of the current debate is the lack of a clear understanding of GI’s main objective. While some consider GI as a landscape-level concept to support habitat conservation and species migration, others view it as an urban-scale tool to combine a diverse range of issues, such as quality of life, climate change adaptation and biodiversity protection (EEA 2011, p. 31).

Although crucial issues remain unresolved in academic literature, GI has been placed on the political agenda in Europe. This process was spearheaded by the United Kingdom (UK), where GI has been embedded in local, regional and national planning documents over the past decade (Wright 2011, Lennon 2014). More recently, GI has also been embraced on a supranational level: In 2013, the European Commission (EC) adopted the GI Strategy “*Enhancing Europe’s Natural Capital*”, endorsing GI as a means to safeguard ecosystem services, increase the connectivity of ecosystems and address climate change mitigation and adaptation (EC 2013, 2015). The EC’s GI Strategy is linked to the EU 2020 Biodiversity Strategy which set out a target to maintain and enhance ecosystems and their services, inter alia by establishing GI (EC 2011). Other European institutions have followed the EC’s lead: The European Parliament adopted a resolution on GI, while opinions on GI were delivered by the Committee of the Regions and the European Economic and Social Committee (EC 2015). As a consequence of the EU’s endorsement of the concept, GI has entered political debates in the Member States. In Germany, the Federal Government of Christian Democrats and Social Democrats committed itself to producing a federal concept on GI in its 2013 Coalition Agreement (Bundesregierung 2013, Deutscher Bundestag 2015).

As countries throughout Europe are beginning to engage with the GI concept, it may be tempting to look toward the UK’s experiences to inform the debate. In Europe, the vast majority of academic and practitioner literature on GI emanates from the UK, where GI has received a level of attention, experimentation and research interest which is unparalleled in Europe (Lennon 2014, p. 5). Although the UK’s experience may provide certain insights, transferring the concept to other planning systems and policy contexts is unlikely to be straightforward. More importantly, while GI planning is generally understood as an opportunity to raise the profile of environmental considerations in urban development and spatial planning processes, it is not without critics. Both academic and practitioner literature has been accused of being more concerned with touting GI’s benefits than with critically assessing the reasons behind the concept’s emergence, its manifestations or practical consequences (Lennon 2014, p. 7). Indeed, there is no shortage of literature providing overviews of GI’s functions and benefits and how these can be clustered into

categories, mapped, calculated and monetarised. This type of literature may serve as a scientific evidence base which underpins and legitimises the adoption of the GI concept in policy and planning. On the other hand, there is a dearth of literature critically assessing the added value of embedding GI in planning practises or positioning the GI concept in a larger socio-political context (Horwood 2011, Lennon 2014). Academic literature frequently appears to consider GI as a neutral, scientific concept rather than as a tool which is filled with meaning by certain actors and mobilised in a specific political, institutional and regulatory context. As a consequence, little consideration is given to the motivations underlying the incorporation of GI in policy documents and the constraints which guide its translation into planning practise. This deficiency must be overcome to allow for a critical assessment of the added value and practical implications of embedding the GI concept in planning policy.

This thesis seeks to further the understanding of GI as a context-dependent instrument by exploring the emergence and evolution of GI planning in North West England (hereafter referred to as NW England) over the past decade. The analysis focuses on a specific region as GI planning in the UK has been largely decentralised and each region has developed its own guidelines and approaches for GI planning (EEA 2011, p. 62). NW England presents an interesting case study because it has been amongst the first English regions to embrace the GI concept, embedding GI in strategies on the regional, city-regional and local level (Thomas and Littlewood 2010, p. 204, Horwood 2011, p. 966).

The thesis hypothesises that the GI concept's adoption in policy debates is entwined with political ambitions and powerful discourses and mobilised within a framework of formal and informal rules which guide policy-making and planning. In order to assess the strengths and weaknesses of NW England's approach to GI planning, the impact of each of these underlying factors must be clearly understood. In this thesis, a Policy Arrangement Approach (PAA) is adopted to guide the analysis of the context in which GI planning in NW England emerged and evolved. Developed at the Department of Political Sciences of the Environment at the Radboud University of Nijmegen, the PAA combines elements of political and sociological methods (e.g. actors network analysis and discourse analysis) to characterise policy fields on the basis of their underlying actor constellations, power dynamics, policy discourses and rules (Arts *et al.* 2000, Arts and van Tatenhove 2004).

The thesis is led by three overarching research questions:

1. By whom and how was the GI concept promoted in NW England?
2. Does the GI discourse in NW England reflect dominant discourses relating to political ideology or environmental and planning policy?
3. Which formal and informal rules guide GI policy-making and planning in NW England?

Before these questions can be tackled, Chapter 2 will provide an overview of the present state of the academic debate on GI. This literature review will give a brief synopsis of the relevant literature and indicate current controversies and knowledge gaps in the field.

Chapter 3 describes the conceptual framework of the thesis and its application to the research questions. After a general introduction to the PAA and its dimensions, the specific methods to tackle each research question will be outlined.

Chapters 4, 5 and 6 present the empirical results of the research. The preliminary results will be discussed after each of these chapters. Chapter 4 sheds light on the main advocates of GI in NW England and on the way in which they engaged with the concept. In other words, it will be explored how each actor embedded the GI concept in its activities by outlining key projects and programmes as well as strategies and informal guidance relating to GI. By exploring their content, the actors' interpretations of GI may be inferred. The capacity of key actors to promote a certain understanding of GI in the region will also be assessed by examining their power and resources.

Chapter 5 links the discourse on GI in NW England to overarching political discourses. Serving as a proxy for the dominant GI discourse in NW England, local and city-regional GI frameworks and strategies will be analysed in order to determine their main storyline. Consequently, dominant discourses relating to political ideology and environmental and planning policy in the UK will be outlined to determine whether elements of such discourses are reflected in the GI discourse.

Chapter 6 explores the framework of rules in which GI planning is embedded in the UK. Firstly, the context of GI will be characterised by describing the UK's planning system and its recent reforms. Secondly, the role of informal rules of governance will be explored. Thirdly, the funding mechanisms associated with GI and their practical implications will be described.

Finally, Chapter 7 summarises and brings together the main findings of the study. Both the research design and the findings will be critically reflected. Taking the new insights into the opportunities and constraints of NW England's context into account, the strengths and weaknesses of its approach to GI planning will be evaluated. The thesis concludes with a number of recommendations for policy and practise as well as for further research.

## 2 Literature review

This chapter outlines the current state of the debate on GI by detailing key strands of discussion and current controversies in the field. Chapter 2.1 illustrates the spectrum of understandings and definitions of GI currently employed, indicating differences between academic disciplines and particularities of the debates in various countries. After this general overview, Chapter 2.2 explores which types of spatial features are generally considered to constitute GI, while Chapter 2.3 portrays the functions and benefits which are attributed to GI in academic literature. In Chapter 2.4, the focus is placed on GI as a planning process, detailing how its quality attributes are understood by various authors. Finally, Chapters 2.5 and 2.6 seek to further understanding of the GI concept by clearly distinguishing it from the terms greenspace and green structure as well as from the concept of ecosystem services.

### 2.1 Understandings and definitions of GI

Several authors have argued that GI is not a new concept as such, but rather a conglomeration of popular concepts and principles currently employed in ecology, geography and planning disciplines (Mell 2011, p. 437, Wright 2011, p. 1005). The importance of such concepts and traditions is evaluated differently amongst authors: In the field of landscape planning and ecology, GI is often placed in the tradition of concepts such as ecological networks, linking it to attempts to tackle habitat fragmentation for nature protection and species conservation (Sandström 2002, Lennon 2014). In urban planning, GI is associated with greenway planning, the Garden City movement or Victorian parks (Mell 2010, Thomas and Littlewood 2010, Lennon 2014). GI has also been linked with 19<sup>th</sup> century urban planning debates about the need to supply recreational spaces while simultaneously addressing public health and flooding problems (Lennon 2014). More recent predecessors are seen in network-focused planning concepts which target ecological and socio-economic issues, while taking climate change adaptation functions into account (Gill 2006, Gill *et al.* 2007). In European academic and policy debates, GI is often linked to ecosystem services, a nexus which will be explored in more depth in Chapter 2.6.

While the roots of GI remain contentious, so does its definition. As Allen (2012, p. 17) argues, “definitions of green infrastructure inevitably have been tailored to appeal to diverse constituents with message points that address a particular professional discipline or resource issue”. Several authors have attempted to make sense of the wide the spectrum of GI definitions applied in conservation-, planning- and design-related disciplines and policy, highlighting similarities and differences (e.g. Mell 2010, Wright 2011, Allen 2012). As the nuances of these interpretations have already been widely discussed, only the key findings will be reiterated at this point. One of the most commonly cited definitions of GI is provided by Benedict and McMahon (2006, p. 1) who describe GI as “an interconnected network of natural areas and other open spaces that conserves natural ecosystem values and functions, sustains clean air and water, and provides a wide array of benefits to people and wildlife.” While the term is applied slightly differently by each author, definitions of GI usually include references to connectivity, multifunctionality and smart conservation (EEA 2011, p. 30).

Nevertheless, a number of differences between GI definitions can be distinguished. Generally, academic literature differentiates between GI as a spatial construct of physical spaces on the ground and GI as a planning approach to manage this network of green features or to raise the profile of environmental concerns through to a range of planning principles (Kambites and Owen 2006, EEA 2011, p. 30). The differentiation between both understandings is not always made explicit in academic literature. While this section focuses on GI as a spatial construct, principles of GI planning will be further explored in Chapter 2.4.

GI has predominantly been discussed in the United States (US) and the UK, in addition to its more recent uptake on a supranational level by the European Union (EU) (Lennon 2014, p. 4). However, the term GI is applied differently across the world: In the United States, it is promoted to support more efficient and sustainable land use and development while protecting ecosystems, and often associated with stormwater management and drainage systems (Lennon 2014, p. 4). The European debate is spearheaded by the UK, where GI is generally understood as a planning approach for built-up areas, although GI has also been proposed as a tool for rural areas and to halt urban sprawl (Amati and Taylor 2010, Lennon 2014). Despite the increasing number of academic publications, practitioner guidance and policy documents on GI, the meaning of GI varies between different disciplines and its ultimate goal remains contentious. While some interpret GI as a means to increase environmentally sensitive access to greenspaces for city residents, others encourage GI as a means to boost urban or regional economic development, to support urban climate change adaptation or to secure biodiversity (Gill *et al.* 2007, Lennon 2014, Lennon and Scott 2014, Sussams *et al.* 2015). GI is generally understood to reconcile goals relating to ecological conservation, economic development and social equity, although each author strikes a different balance between these dimensions. While some authors have criticised the ambiguity and uncertainty surrounding GI, these features have been described as advantages by Wright (2011, p. 1014), who argues that this “allows the concept to adapt to the varied requirements of different spatial and temporal situations”. Although the goals of GI planning remain somewhat disputed, considerable effort has been expended on describing, categorising and measuring the benefits and functions of GI (e.g. Kambites and Owen 2006, ECOTEC 2008, Butlin *et al.* 2011, Burgess 2015).

In addition to UK and US debates, GI has also been endorsed by the European Commission (EC) as a means to safeguard ecosystem services and increase the connectivity of ecosystems, while addressing climate change mitigation and adaptation. In the EC’s 2013 GI strategy, GI is described 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). GI is described as a tool to aid the restoration and increased resilience of ecosystems, thus contributing to the EU’s 2020 biodiversity target and the minimisation of natural disaster risks. Although the European debate does not focus on stormwater management to the same extent as US literature, GI is linked to so-called ‘nature-based solutions’, such as using flood plain restoration rather than constructing dikes for coastal protection. GI is promoted on the EU level to encourage integrated spatial planning in the Member States and secure a “greener and more sustainable economy” (EEA 2011, p. 33). Against this backdrop, GI is described as “a highly valuable policy tool to promote sustainable development and smart growth”, offering “win-win, or ‘no regrets’ solutions [...] within a financially viable framework” (EC 2012, p. 1). The EC’s endorsement of GI is in line with its promotion of other initiatives seeking to reconcile ecological conservation with economic development, such as the ‘The Economics of Ecosystems and Biodiversity’ (TEEB) programme (Lennon 2014, p. 5).

As outlined above, interpretations of GI vary between disciplines and geographic regions; interpretations can also be classified according to the scale on which GI is applied. According to the EEA (2011), disciplines such as urban planning and landscape architecture generally promote GI at the urban scale, while a focus on the landscape scale is more common in relation to spatial planning and species conservation. Although the aim at both scales is to develop and protect networks of green features, there are considerable differences between these interpretations which are summarised in Table 2.1.

Table 2.1 demonstrates that not only do the features considered part of GI differ, but so do the key benefits they are described to deliver. For instance, agricultural land may be counted as part of urban GI as it may be conducive to water infiltration and have recreational value. On the other hand, it may not be considered part of GI on a landscape level, as the main focus from this perspective is the provision of migration corridors for species. The understanding of the features which make up GI and the

benefits that GI provides thus vary according to the context in which they are employed. The elements or features which are commonly considered part of GI will be further explored in the following section.

**Table 2.1 Comparison of GI at urban and landscape scales**

(adapted from EEA 2011, p. 31)

| <b>GI characteristics</b>   | <b>Urban scale</b>   | <b>Landscape scale</b>  |
|---|--|---|
| <b>Aim of GI planning</b>   | <ul style="list-style-type: none"> <li>▪ Development and protection of a network of multi-functional green space in urban environments</li> </ul>  | <ul style="list-style-type: none"> <li>▪ Development and protection of connections between valuable habitats in wider landscape scale</li> </ul>  |
| <b>Most common structures</b>                                     | <ul style="list-style-type: none"> <li>▪ Parks, tree-lined avenues, green roofs, agricultural land and woodland inside towns, etc.</li> </ul>  | <ul style="list-style-type: none"> <li>▪ Habitats (In the EU, more specifically the Natura 2000 sites) and corridors</li> <li>▪ Rivers and streams, hedges, etc.</li> <li>▪ Overlap with term 'ecological network'</li> </ul> |
| <b>Matrix/obstacles</b>   | <ul style="list-style-type: none"> <li>▪ Urban built-up environment</li> </ul>   | <ul style="list-style-type: none"> <li>▪ Intensively farmed land</li> <li>▪ Built-up areas</li> <li>▪ Grey infrastructure</li> </ul>  |
| <b>Key associated benefits (as highlighted in the literature)</b> | <ul style="list-style-type: none"> <li>▪ Urban heat island mitigation</li> <li>▪ Water run-off management</li> <li>▪ Water retention (flood prevention)</li> <li>▪ Recreation</li> <li>▪ Visual pleasure, sense of nature and open space</li> <li>▪ Wildlife habitats</li> </ul> | <ul style="list-style-type: none"> <li>▪ Species migration</li> <li>▪ Water retention (water recharge and flood prevention) — to a lesser extent</li> </ul>   |
| <b>Key topic/policy links</b>                                     | <ul style="list-style-type: none"> <li>▪ Quality of life in cities</li> <li>▪ Biodiversity protection</li> <li>▪ Climate change adaptation</li> <li>▪ Climate change mitigation</li> </ul>   | <ul style="list-style-type: none"> <li>▪ Biodiversity protection</li> <li>▪ Climate change adaptation</li> </ul>  |
| <b>Examples of disciplines using the term</b>                     | <ul style="list-style-type: none"> <li>▪ Urban planning</li> <li>▪ Landscape architecture</li> <li>▪ Environmental management</li> </ul>   | <ul style="list-style-type: none"> <li>▪ Species conservation</li> <li>▪ Spatial planning</li> <li>▪ Environmental management</li> </ul>  |

## 2.2 Types and elements of GI

As mentioned above, GI is generally understood to encompass a variety of different spaces and natural elements, which are linked to a wider network of greenspaces. Burgess (2015, p. 228) describes the heterogeneity of GI elements in relation to four categories: ownership, size and scale, management and use. The author highlights that GI not only encompasses elements which are publically owned (e.g. urban parks) but also areas which are in private ownership (e.g. private gardens). In terms of size and scale, GI may range from the micro level (e.g. individual trees) to large natural or semi-natural spaces (e.g. forests). The types of GI can also be differentiated by the degree of management and maintenance

required, as some natural areas are not maintained in any way while others are carefully manicured (e.g. formal gardens) (Burgess 2015, p. 227). Finally, GI includes areas with different types of use. As a result of their character, management and potential restrictions, each element of GI will attract different user groups with specific needs and expectations. The use of GI by residents and visitors can be active, as in the case of playgrounds or parks, or passive in less intensively used areas (Burgess 2015, p. 228). Table 2.2 shows a typology of GI categories as proposed by Burgess (2015), differentiating the elements by scale and providing examples of each type.

**Table 2.2 Typology of GI features**  
(adapted from Burgess 2015, p. 229)

| Scale         | Typology                        | Examples   |
|---------------|---------------------------------|--|
| Micro         | Street trees                    | Urban trees, green road verges   |
| Building      | Green roofs and walls           | Rooftop gardens, vertical gardens, bird boxes  |
| Site          | Amenity spaces                  | Informal recreation spaces, green spaces in and around housing and business developments |
|               | Derelict lands                  | Abandoned land, temporary greening of vacant sites                                       |
|               | Water management spaces         | Sustainable urban drainage schemes, flood storage areas, rain gardens                    |
| Neighbourhood | Parks and gardens               | Urban parks, country parks, playgrounds, town greens                                     |
|               | Land used for urban agriculture | Allotments, community gardens, urban orchards  |
|               | Civic spaces                    | Squares and outdoor market spaces, other hard-surfaced areas designed for pedestrians    |
|               | Institutional grounds           | Land surrounding schools, hospitals, universities, cemeteries and churchyards            |
|               | Outdoor sports facilities       | Tennis courts, golf courses, athletic tracks, playing fields                             |
| Settlement    | Green corridors                 | River and canal banks, cycleways, paths and greenways, railway cuttings                  |
|               | Natural and semi-natural spaces | Woodlands, scrublands, wetland, coastal habitats, lakes                                  |
| Rural         | Agricultural land               | Farmland, paddocks, fields, vineyards, orchards  |

The table demonstrates that some authors, like Burgess (2015), understand GI to include areas beyond those which are commonly considered 'green' (e.g. tennis courts, hard-surfaced areas). However, the precise delineation of GI varies from author to author. For instance, the EC's GI Working Group (2011, p. 14) sets out a number of criteria which areas must fulfil to be considered GI, rather than relying on fixed categories. Accordingly, GI must

- "Provide one or more significant ecosystem services of great value at the local, regional or European levels
- Contribute to the conservation of biological diversity, specially increasing the connectivity and permeability of landscape
- Do not create negatives effects in other ecosystem services

- Fit into coordinated initiatives at local/regional/national scale, this is into a GI working plan, local strategy or equivalent” (GI Working Group 2011, p. 14).

In contrast, areas which are influenced by human actions and contradict the above criteria or are not adapted to the natural potential of the locality should not be considered as part of GI. Consequently, the following areas are generally not considered GI:

- Recreation parks or sport areas (golf courses), if they are in conflict with the health of ecosystem compartments (e.g. soil, water resources) and if they don't contribute to biodiversity conservation.
- Green strips alongside roads and railways or green urban corridors, if they are managed in a purely recreational or ornamental manner rather than serving biodiversity, e.g. planted with monocultures or non-native ornamental species.
- BAT (best available technology) solutions for buildings, if their focus is exclusively on material issues rather than on land-use and biodiversity impacts (GI Working Group 2011, p. 16).

The GI Working Group thus defines GI largely in terms of its contribution to ecosystem services. This is indicative of the EC's promotion of both concepts, which are closely entangled in European policy debates (EC 2012, 2013, 2015). Comparing the perspectives of Burgess (2015) and the GI Working Group (2011), it seems that there are considerable inconsistencies between the type of areas considered part of GI. Some categories proposed by Burgess (2015, p. 229) are highly contentious, e.g. hard-surfaced areas for pedestrian use or outdoor sports facilities. The views on what constitutes GI are linked to the authors' perspectives on the main aim and purpose of GI. Authors which view GI as a tool for biodiversity conservation and the delivery of ecosystem services generally insist that GI elements contribute to these goals. On the other hand, authors focusing on the multifunctionality of GI and its contribution towards both socio-economic and environmental goals may take a broader stance on what constitutes GI. These discrepancies may be explained by the different interpretations of GI at the urban and the landscape scale which were outlined in the previous section (see Table 2.1). As typical for the UK GI debate, Burgess (2015) focuses on urban areas and includes a range of areas which are of low conservation concern but may contribute towards a range of other functions and benefits. In contrast, the stance of the GI Working Group (2011) reflects a predominant concern with ecosystem services and biodiversity, which is emblematic of a landscape approach to GI.

The discussion of elements and features which constitute GI is frequently linked to the functions and benefits associated both with individual elements and GI as a whole. These will be explored in the following section.

## 2.3 GI functions and benefits

GI and its individual features or elements are generally described to provide multiple ecological, social and economic functions and benefits (e.g. Ahern 2007, NWGITT 2008, Llausàs and Roe 2012, Hansen and Pauleit 2014, Burgess 2015). In academic and practitioner literature on GI, the terms 'function' and 'benefit' are frequently used interchangeably and without further explanation or definition. For instance, NWGITT (2008, p. 13) includes a simple list of GI functions and benefits (see Table 2.3).

Many authors group GI functions into categories, for instance by differentiating between ecological, social, and economic functions (e.g. Pauleit *et al.* 2011, Burgess 2015). Others classify the functions according to abiotic, biotic, and cultural categories (Ahern 2007) or their relation to the biotic, physical and social environment (Llausàs and Roe 2012). Finally, some authors have attempted to describe GI functions by linking them to specific ecosystem service categories (e.g. Lovell and Taylor 2013). Despite the different systems of classifying the functions of GI, authors agree that GI can provide various functions,

ranging from improving ecological connectivity to raising property values. For the purposes of this section, the typology of GI functions follows the categorisation proposed by Burgess (2015), who differentiates between social and cultural functions, ecological functions and economic functions.

**Table 2.3 The functions and benefits of GI as described by NWGITT**  
(adapted from NWGITT 2008, p. 13)

| Green Infrastructure Function or Benefit          |  |                              |
|---|--|------------------------------|
| ▪ Create setting for economic growth/regeneration | ▪ Physical health                          | ▪ Air & water quality        |
| ▪ Job creation & social enterprise                | ▪ Mental health and wellbeing              | ▪ Natural tourism            |
| ▪ Skills & training                               | ▪ Access to natural green-space            | ▪ Biodiversity in situ       |
| ▪ Community cohesion                              | ▪ Land and property value uplift           | ▪ Environmental connectivity |
| ▪ Community safety                                | ▪ Flood management                         | ▪ Culture                    |
| ▪ Sport   | ▪ Climate change adaptation and mitigation | ▪ Quality of place           |

Burgess (2015, p. 231) describes that GI can provide a range of social and cultural functions which include

- “contributing to identity, sense of place, character and context [...];
- providing space for exercise, leisure, relaxation, social connection, learning and play [...];
- connecting with nature, heritage and place [...] and
- promoting a sense of belonging, linking communities and social inclusion [...].”

Moreover, GI can provide several ecological functions:

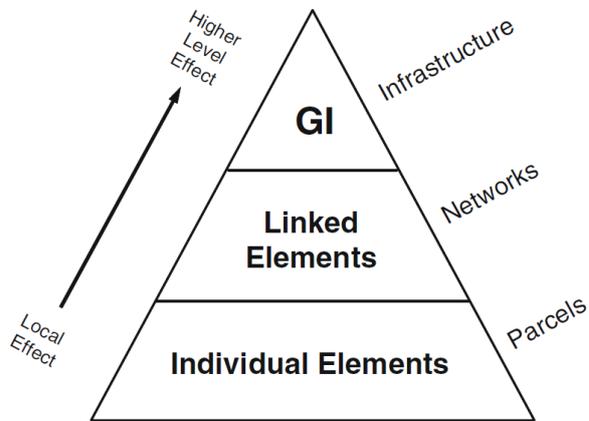
- “improving and stabilising soils, nutrient cycling and improving surface permeability [...];
- providing fresh water, food, wood, fibres and fuel [...];
- improving climatic and environmental conditions such as reducing flooding and wind speeds, cooling surface and air temperatures, purifying water, absorbing noise, storing carbon and regulating disease [...] and
- providing habitats for flora and fauna” (Burgess 2015, p. 232).

Finally, Burgess (2015, p. 233) describes a range of economic functions associated with GI:

- “improving property values, rents, retail sales and lower maintenance costs [...];
- providing energy savings, decreasing water bills, reducing the financial costs of flooding [...];
- improving productivity at work, reducing absence from the workplace owing to sickness, increased job satisfaction, reducing health costs and reduced crime [...];
- providing jobs, encouraging the green economy and tourism [...] and
- providing food, fuel and materials”.

Although not always made explicit in the literature, the functionality of GI may be assessed on different spatial levels. Figure 2.1 demonstrates that functions may be provided by individual GI elements (e.g. parks), linked elements (networks of GI elements on a neighbourhood or city level) or the interrelated

system of GI on a regional level. Correspondingly, the potential of individual elements may be limited to local effects, while the functions and benefits of the entire GI network may be of a wider scope (Hansen and Pauleit 2014, p. 519).



**Figure 2.1 Multifunctionality of GI and its elements at different spatial levels**

(Source: Hansen and Pauleit 2014, p. 519)

The physical delineation of GI and its individual elements as well as efforts to devise typologies of its functions and benefits presume that GI constitutes a spatial construct which can be identified on the ground and mapped. However, GI can also be understood as a planning process marked by specific characteristics or benchmarks. This perspective will be further explored in the following chapter.

## 2.4 GI as a planning process

As described in Chapter 2.1, GI can refer to a spatial network of particular types of land cover and land use as well as to a specific planning approach. While the previous sections explored GI as a spatial structure, this section puts planning principles associated with GI in the spotlight. Several authors have attempted to distil key principles of planning or managing GI. Table 2.4 shows the main characteristics of GI planning as described by Lennon and Scott (2014), Kambites and Owen (2006) and Hansen and Pauleit (2014). At first glance, there appear to be considerable differences between the principles put forward by the authors. Nevertheless, large overlaps between the sets of criteria can be identified in spite of the different terms employed by the authors.

As Table 2.4 demonstrates, connectivity is described as a key principle of GI planning by Lennon and Scott (2014) as well as by Hansen and Pauleit (2014). This links back to the understanding of GI as a spatial structure: GI is commonly described as an interconnected network of greenspaces which provide multiple functions and benefits (Benedict and McMahon 2006, p. 1). GI planning explicitly seeks to close gaps in this network by supporting GI elements which increase connectivity (Hansen and Pauleit 2014, p. 518). However, it should be noted that the understandings of connectivity vary between the authors. A narrow interpretation is put forward by Hansen and Pauleit (2014, p. 517) who describe that GI planning serves connectivity by supporting “physical and functional connections between green spaces at different scales and from different perspectives”. In contrast, Lennon and Scott (2014, p. 572) understand connectivity to be both a characteristic of GI on the ground and of the GI planning process, differentiating between spatial, scalar and institutional connectivity. While spatial connectivity refers to the physical connection of GI elements across the landscape, scalar connectivity highlights the need for coordination and consistency across spatial and administrative scales, encouraging strategic thinking about GI; Rather than piecemeal interventions at the local level, individual measures should be embed-

ded in larger scale and long-term strategic plans. Finally, institutional connectivity implies that partnerships and cooperation between different administrative organisations should be established, as joined-up approaches and integrated governance are considered essential to GI planning (Lennon and Scott 2014, p. 572). The principle of scalar connectivity reflects what Hansen and Pauleit (2014, p. 517) describe as a “multi-scale approach”, highlighting that GI planning may apply to initiatives at different scales, while GI itself should function at multiple scales in concert. According to Kambites and Owen (2006, p. 484), GI planning is marked by a strategic approach, “extending, in terms of space, beyond administrative and other boundaries and, in terms of time, extending well into the future to include longer-term changes in ecosystems and social systems”. This corresponds to Lennon and Scott’s (2014, p. 572) broad understanding of connectivity, while adding that different timescales must be considered in GI planning. Hansen and Pauleit (2014, p. 517) also emphasise the strategic approach, specifying that GI planning “aims for longterm benefits but remains flexible for changes over time”.

**Table 2.4 Key principles of GI planning**

| Lennon and Scott (2014)   | Kambites and Owen (2006)  | Hansen and Pauleit (2014)   |
|---|---|---|
| <ul style="list-style-type: none"> <li>▪ Connectivity (spatial, scalar and institutional)</li> </ul>            | <ul style="list-style-type: none"> <li>▪ Holistic</li> </ul>                                    | <ul style="list-style-type: none"> <li>▪ Integration</li> </ul>           |
| <ul style="list-style-type: none"> <li>▪ Multifunctionality</li> </ul>  | <ul style="list-style-type: none"> <li>▪ Strategic</li> </ul>                                   | <ul style="list-style-type: none"> <li>▪ Multifunctionality</li> </ul>    |
| <ul style="list-style-type: none"> <li>▪ Context sensitivity (interdisciplinarity and collaboration)</li> </ul> | <ul style="list-style-type: none"> <li>▪ Inclusive</li> </ul>                                   | <ul style="list-style-type: none"> <li>▪ Connectivity</li> </ul>          |
| <ul style="list-style-type: none"> <li>▪ Prioritize GI</li> </ul>   | <ul style="list-style-type: none"> <li>▪ Qualitative</li> </ul>                                 | <ul style="list-style-type: none"> <li>▪ Multi-scale approach</li> </ul>  |
|   | <ul style="list-style-type: none"> <li>▪ Linked to process of settlement development</li> </ul> | <ul style="list-style-type: none"> <li>▪ Multi-object approach</li> </ul> |
|   |   | <ul style="list-style-type: none"> <li>▪ Strategic approach</li> </ul>    |
|   |   | <ul style="list-style-type: none"> <li>▪ Social inclusion</li> </ul>      |
|   |   | <ul style="list-style-type: none"> <li>▪ Transdisciplinarity</li> </ul>   |

Furthermore, Lennon and Scott (2014, p. 571) describe that GI planning must exhibit context sensitivity towards the ecological and cultural framework of GI initiatives. This can be achieved through interdisciplinarity and collaboration throughout the planning, implementation and maintenance phases of GI initiatives, involving both experts and local citizens and bridging planning silos (Lennon and Scott 2014, p. 571). Similar views are expressed by the other authors: Kambites and Owen (2006, p. 484) emphasise the inclusive character of GI planning, which should embrace “the full range of sometimes overlapping ‘stakeholders’, whether users, local communities, landowners, elected representatives, professional advisors or developers”. Hansen and Pauleit (2014, p. 517) propose transdisciplinarity and social inclusion as key principles, arguing that GI planning should build upon the knowledge of various disciplines, partnerships between local authorities and stakeholders and communicative and socially inclusive processes (Hansen and Pauleit 2014, p. 517).

A further common feature of GI planning is its focus on multifunctionality. As described in Chapter 2.3, GI is generally described to provide a wide array of functions and benefits. GI planning explicitly seeks to encourage synergies by allowing for different functions and thus optimising the use of limited space. According to Hansen and Pauleit (2014, p. 517), GI planning “considers and seeks to combine ecological, social and economic/abiotic, biotic and cultural functions of green spaces”. Similarly, Lennon and Scott (2014, p. 574) understand GI planning as a way to enhance multiple ecosystems services, arguing that “a GI approach reverses traditional planning practices, wherein attention is directed at the provision of single functions (e.g. drainage, conservation, recreation) in specific locations”. Instead, GI planning

“seeks to steer spatial planning towards integrated land use governance, wherein multifunctional ecosystems services potential are realised through enhancing positive synergies between abiotic, biotic and social systems” (Lennon and Scott 2014, p. 574). Although Kambites and Owen (2006, p. 484) use different terms, similar issues are addressed: As a holistic approach, GI planning considers all human and natural functions of GI, incorporating “concepts such as biodiversity value, water quality and human satisfaction” (Kambites and Owen 2006, p. 484). Hansen and Pauleit (2014, p. 517) also recognise that GI planning must consider a wide range of green and blue spaces with different characteristics as well as their ability to provide various functions (‘multi-object approach’).

A final element of GI planning is its relationship to other types of infrastructure and spatial planning. In this regard, Kambites and Owen (2006, p. 484) suggest that GI planning should be “closely, but not exclusively, associated with the process of settlement development, whether by extension or regeneration”. Hansen and Pauleit (2014, p. 517) describe that GI planning must be integrated and coordinated with other urban infrastructures, creating physical and functional links (e.g. to the built-up structure, transport infrastructure, and water management system). Lennon and Scott (2014, p. 574) go even further by arguing that as fundamental infrastructure, GI should be prioritised by planning and considered before development. The authors emphasise that GI planning integrates conservation with land development and traditional infrastructure planning, marking a shift beyond the creation of ‘islands of protection’ toward the general integration of ecological concerns in land use and spatial planning processes (Lennon and Scott 2014).

Summing up, the term GI may refer both to a linked network of greenspaces and to a planning process to develop and safeguard this network. Several authors have attempted to distil key characteristics or principles of GI planning. While the heterogeneous language employed by different authors suggests conflicting opinions, the key principles coincide to a large extent. GI planning is generally understood as a process targeted at strengthening connectivity between individual GI elements, while recognising and supporting their multiple functions and benefits. Simultaneously, GI planning is generally associated with strategic and cooperative approaches, involving a variety of actors and stakeholders, sectors and planning scales. Finally, the necessity to integrate GI planning with spatial and infrastructure planning processes is highlighted, emphasising that GI must be recognised as fundamental infrastructure.

## **2.5 GI, greenspaces and green structure**

While the previous chapters described the characteristics of GI and GI planning, this chapter highlights how the concept differs from other notions. In order to provide greater clarity about the distinctive features of GI, its relation to the terms ‘greenspaces’ and ‘green structure’ will be explored, which often appear in the same context and are sometimes used interchangeably.

In urban areas, greenspaces are understood as those surfaces which are not built up or sealed, including formal greenspaces which are designated in spatial plans and other actual greenspaces. Formally designated greenspaces include parks, public gardens, recreation areas, urban forests and cemeteries. Other greenspaces may include private gardens, recreational sites of schools or hospitals, farm- or woodland and water bodies such as ponds, rivers or lakes. Although not formally designated, their ecological functions are comparable to formal greenspaces. According to Beer (2010, p. 433f), the entirety of greenspaces (both formally designated and other) constitutes the green structure of a city, which encompasses private and public greenspaces of different uses and degrees of naturalness. A green structure functions as a whole, generating benefits which go beyond the sum of individual greenspaces, and can be mapped, planned and managed (Beer 2010).

While the term ‘green structure’ emerged in the 1980s, it has been largely replaced by the term GI in recent years, which addresses similar concerns (Tjallingii, p. 16, Beer 2010, p. 441). Similar to GI, the

notion of green structures highlights the importance of spatial and functional connectivity, drawing attention to greenways for recreation as well as to ecological networks for biodiversity. Both concepts call for a holistic approach rather than considering individual greenspaces in isolation, taking both ecological and socio-economic functions and benefits into account. A further similarity is the broad view of which spaces make up the green structure or GI (considering different degrees of naturalness, use, ownership and management).

However, the GI concept also incorporates several new ideas. According to Thomas and Littlewood (2010, p. 210), “[w]hat distinguishes the GI metaphor from other and earlier notions of green belts, green structure, green corridors, and so forth, is the emphasis on infrastructure, incorporating a conscious analogy with hard infrastructures such as public utilities and transport networks that support the functioning of conurbations.” The use of the term ‘infrastructure’ thus serves to elevate greenspace planning to the same level as traditional, ‘grey’ infrastructure planning (Beer 2010, p. 434). This emphasises that greenspaces are essential and productive parts of the urban or rural fabric, rather than idle patches of land or amenities which are nice to have. It also marks another shift in thinking about greenspaces: Rather than leaving greenspaces in their natural state, GI must be actively managed, maintained or restored (Benedict and McMahon 2006, p. 7).

The debate on GI has also served to emphasise multifunctionality more so than earlier concepts. While green structures were argued to comprise areas providing different functions, GI is explicitly described as multifunctional, highlighting the potential to provide several functions and benefits on the same area (Beer 2010, p. 434f). According to the logic of GI, greenspaces become infrastructure as a result of their functions and benefits to the public. This becomes apparent in the following analogy: “A slab of tarmac isn’t infrastructure, but a road is. Give tarmac a purpose, some users, a public benefit and a place in a wider network - and it becomes essential infrastructure” (NWGIT 2008, p. 1). This perspective indicates that GI must ‘earn its keep’; individual greenspaces must be linked to a wider GI network and demonstrate their provision of amenities or services. The focus is thus on the ‘added value’ of greenspace (Thomas and Littlewood 2010, p. 211). Focusing on multifunctionality, GI seeks to balance anthropocentric utility with ecological protection rather than prioritising conservation (Lennon and Scott 2014, p. 575). In the European context, GI also differs from earlier notions such as green structures by its affiliation with the concept of ecosystem services. The nexus between GI and ecosystem services will be explored in the following chapter.

## 2.6 GI and Ecosystem Services

Having disentangled the notions of greenspace, green structure and GI in the previous chapter, this chapter explores the muddled relationship between the concepts of GI and ‘ecosystem services’. In European academic literature and policy debates, GI is often linked to ecosystem services, which are generally understood as “the benefits people obtain from ecosystems” (Millennium Ecosystem Assessment 2003, p. 3). While some authors and practitioners use the terms GI and ecosystem services interchangeably, others view them as competing approaches (Gill 2016, p. 464). GI is commonly understood to encompass ecosystems which in turn provide ecosystem services or as a planning mechanism to support ecosystem services (e.g. Farrugia *et al.* 2013, Gill *et al.* 2007, Gill 2016, EC 2013).

Gill (2016, p. 465) describes GI and ecosystem services as different terms associated with the same approach, rather than as separate, independent approaches. The main differences between the concepts lie in their origin and spheres of influence rather than in their content (Gill 2016, p. 466). While ecosystem services are much discussed in academic spheres, the GI concept has stronger links to policy agendas. The term ecosystem services first appeared in academic papers in the 1980s and was later embedded in policy, for instance with the 2003 Millennium Ecosystem Assessment (Gómez-Baggethun and Barton 2013). In contrast, the term GI was first employed in relation to water management

and land use planning in the United States in the 1980s and only appeared in academic literature in the mid-1990s. It can thus be concluded that GI has a more practice-oriented origin, while the roots of the ecosystem service concept are academic. To date, GI has received comparatively little academic attention, as academic publications refer to ecosystem services 18 times more often than to GI (Gill 2016, p. 465).

Moreover, Gill (2016, p. 465f) describes that the spatial focus and audiences differ between the concepts: "Ecosystem services tend to be largely rural in focus and relate to environmental management and biodiversity conservation; whilst green infrastructure tends to be largely urban or peri-urban in focus and relate to planning and regeneration." This different focus becomes apparent in the language employed in relation to the concepts. Literature on ecosystem services uses ecosystems and habitats as an entry point, focusing on natural or semi-natural ecosystems, although urban ecosystems can also be included. In contrast, the language of GI is more closely linked to urban planning classifications, allowing for an easier translation into planning practice and mapping assessments. Gill (2016, p. 466) argues that the term 'infrastructure' reflects that the concept was developed to appeal to an urban planning audience which is familiar with the provision of traditional grey infrastructure.

Despite their different origins and foci, debates about GI and ecosystem services have become more closely aligned in recent years. Urban ecosystem services and GI have received increasing attention in academic and policy debates, not least as part of the EC's GI agenda (Gómez-Baggethun and Barton 2013, p. 235). Due to their close alignment, GI and ecosystem services can be understood as two sides of the same coin, which complement and reinforce each other, rather than as separate, conflicting approaches. Due to its stronger embeddedness in academic spheres, "ecosystem services can be seen as the science that underpins green infrastructure planning, whilst green infrastructure may be viewed as the public policy discourse relating to ecosystem services" (Gill 2016, p. 466f).

The previous chapter has provided a synopsis of the current state of the literature on GI. It has become apparent that no full consensus has been reached to date about the precise meaning of GI. Interpretations of the concept vary between academic disciplines and the debates have assumed distinct forms in different countries. While the term GI has become associated both with a network of greenspaces and with a specific planning approach to guide its development, the ultimate goal of GI planning remains ambiguous. The current discussion is divided because some authors consider GI on a landscape level, while others perceive it as a tool for the urban scale. Whereas the first perspective emphasises the importance of GI for habitat conservation and species migration, the second perspective links GI to a wider range of issues, including climate change adaptation and recreation. As a result, the views on what constitutes GI and which functions and benefits are highlighted vary depending on the study's context. At the same time, the GI concept has been described as an attempt to raise the profile of greenspace management and conservation to the same level as traditional 'grey' infrastructure, whilst communicating their benefits to people more clearly. In this way, the GI concept closely resembles the debate around ecosystem services; indeed, GI has been interpreted as the policy-focused counterpart to the more academic ecosystem services concept. This literature review has demonstrated that the term GI is currently applied inconsistently despite its meteoric rise in popularity in various academic fields as well as in UK and EU policy. As a concept primarily rooted in the sphere of policy and practice, GI has as yet been subjected to little critical assessment. While academic literature frequently approaches GI as a neutral scientific entity, which can be quantified, categorised and mapped, the implications of its translation into policy remain insufficiently studied. It is against this backdrop that this thesis demonstrates the context in which the GI concept was embraced in NW England and how it evolved over time. In the following chapter, the conceptual framework and methodology underpinning the analysis will be presented.

### 3 Conceptual framework and methodology

After establishing the current state of the debate on GI in the previous chapter, this chapter describes how the study's research questions will be tackled. Chapter 3.1 outlines the reasons for selecting the Policy Arrangement Approach (PAA) as conceptual framework, its roots and characteristics, and the concept of policy arrangements. Consequently, the individual elements or dimensions of policy arrangements will be described and linked to the study's research questions in Chapter 3.2. The methods employed to explore each dimension will also be set out.

#### 3.1 The Policy Arrangement Approach

As outlined in Chapter 1, the aim of this thesis is to explore GI as an inherently political, rather than neutral scientific concept. It is hypothesised that the uptake of the GI concept is linked to the interests of powerful actors with specific ambitions, a range of other discourses and a framework of formal and informal rules. Using NW England as a case study, the thesis explores the link between the GI concept and the context in which it is conceived and applied. In light of these aims, several requirements for a conceptual framework can be identified. Firstly, the conceptual framework must incorporate the wider political context of the GI concept, allowing the content of the dominant discourse on GI to be linked to overarching political discourses. Secondly, it must be suitable to investigate both substantive and organisational aspects, as the interpretation of the GI concept in NW England is explored as well as how it has been shaped by actor constellations and a changing framework of rules. Finally, the conceptual framework must allow for the investigation of changes over time, as the GI concept has evolved over a decade in NW England and withstood numerous political and structural changes.

The PAA was found to meet these requirements. Developed at the Department of Political Sciences of the Environment at the Radboud University of Nijmegen, PAA builds upon a number of established concepts from sociology and political science, such as 'policy networks', 'discourse coalitions', 'advocacy coalitions' and 'power in policy processes' (see Arts *et al.* 2000, van Tatenhove and Leroy 2000, Arts and van Tatenhove 2004, Arts and Leroy 2006a). In contrast to other methods, the PAA particularly emphasises four factors: "(1) the institutional embeddedness of multi-actor policy processes; (2) the manifestation of structural developments, such as globalisation, in concrete policy practices; (3) the role of different faces of power in policy-making; and (4) the importance of both substance and organisation, as well as of change and continuity in policy practices" (Arts and van Tatenhove 2004, p. 340f).

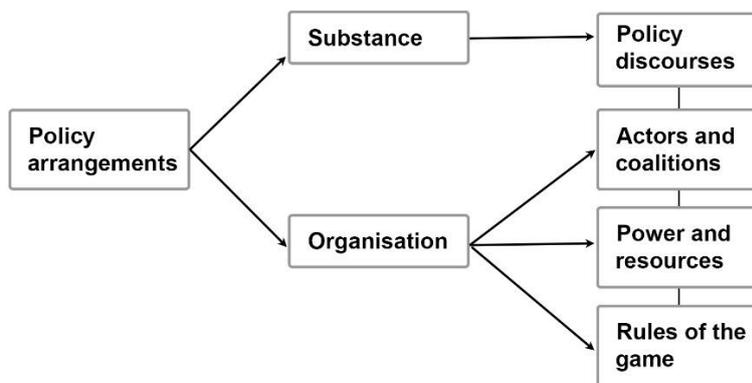
The PAA thus provides a tool to incorporate both context and processes of change. The approach is based on the notion that policy decisions and policy-making processes take place within policy arrangements (characterised by a specific set of actors, resources, rules and discourses). Arts *et al.* (2000, p. 54) define a policy arrangement as "the temporary stabilisation of the organisation and substance of a policy domain at a specific level of policy making." The policy arrangement can be characterised both by its substance (e.g. principles, aims, laws, measures) and its organisation (e.g. division of responsibility and tasks, departments, instruments). The analytical concept of policy arrangements links day-to-day interactions on the micro-level with macro-processes of social and political change (Arts and van Tatenhove 2004, p. 341). Drawing upon the sociological notion of the duality of agency and structure (Giddens 1984), policy arrangements are shaped both by actor agency and the societal and political context or structure. While actors are influenced by their structural context and not completely autonomous in their (inter)actions, actors also shape and uphold the structural arrangement in their (inter)actions. The shape of policy arrangements is always temporary and constantly undergoing changes as a

result of policy innovations or political modernisation. Policy arrangements can exist at different geographical and administrative levels, spanning from local to transnational arrangements (Arts and van Tatenhove 2004, p. 342).

The substantial and organisational features of a policy arrangement can be examined through four dimensions: actors and coalitions, resources and power, rules of the game and discourses. As Figure 3.1 illustrates, the first three dimensions are concerned with the organisation of a policy field, while the last describes its substance. Moreover, it demonstrates that the four dimensions within a policy arrangement make up an interrelated structure. Arts *et al.* (2000, p. 56f) illustrate the interrelationships between the dimensions as follows:

*“a policy discourse is (re)produced and transformed by the relevant policy agents, while at the same time this discourse co-determines which agents are legitimate stakeholders in policy practices. Equally, power relations co-determine which policy discourse may become dominant in a specific arrangement, whereas the rules of the game may exclude or include certain players.”*

The approach thus emphasises the interrelationships between its dimensions and how changes to one dimension impact the other dimensions.



**Figure 3.1 Operationalisation of the policy arrangement approach**  
(adapted from Arts *et al.* 2000, p. 56)

### 3.2 Operationalising the research questions

In this thesis, the PAA is used to explore the emergence and evolution of the GI concept in NW England. The scope was limited to a specific region as GI planning in the UK has been largely decentralised and each region has developed its own guidelines for GI planning, which were followed by the production of plans for cities and city regions (EEA 2011, p. 62). NW England was selected as study region because it was amongst the first English regions to embrace the GI concept; NW England appears to have been exceptionally committed to GI as the concept has been embedded in strategies on the regional, city-regional and local level and a myriad of guidance documents, scoping studies and reports in the region (Thomas and Littlewood 2010, p. 216, Payne and Barker 2015, p. 375). As a result, many documents devoted to GI planning on the level of the region, its city-regions and cities are available for analysis.

The emergence and evolution of the GI concept in NW England will be explored through three overarching research questions which were already briefly introduced in Chapter 1. As Table 3.1 shows, each research question corresponds to a dimension of the PAA and encompasses a number of sub-questions. Due to the limited scope of this thesis, the dimension of resources and power will not be described separately. Instead, the resources and power of the most important actors will be assessed after describing their role in the policy arrangement.

**Table 3.1 Research questions**

| <b>Dimension</b>  | <b>Research questions</b>   |
|---|---|
| <b>Actors and coalitions &amp; Power and re-sources</b> | 1. By whom and how was the GI concept promoted in NW England?   |
|   | a. Who were the main advocates of the GI concept?   |
|   | b. How did the actors engage with the GI concept?   |
|   | c. How was the actors' involvement influenced by their resources and relative power?  |
| <b>Discourses</b>                                       | 2. Does the GI discourse in NW England reflect dominant discourses relating to political ideology or environmental and planning policy? |
|   | a. What is the main storyline of local and city-regional GI plans?  |
|   | b. Do these storylines reflect dominant discourses relating to political ideologies?  |
|   | c. Do these storylines reflect dominant discourses about the role of the environment and sustainability in policy and planning?         |
| <b>Rules of the game</b>                                | 3. Which formal and informal rules guide GI policy-making and planning in NW England?   |
|   | a. How have the characteristics and reforms of the UK planning system affected GI planning?   |
|   | b. Does GI planning in NW England reflect informal modes of urban and regional governance?  |
|   | c. Which funding mechanisms are associated with the delivery of GI in NW England?   |

The following sub-sections explore the general role of each dimension and its significance for the study. Consequently, the methods employed to tackle the corresponding research questions will be outlined.

### **3.2.1 Actors and coalitions**

Within the PAA, the dimension of actors and coalitions focuses on the involved individuals or organisations as well as on their interaction and cooperation. Actors and coalitions can include members of all spheres of society; In the environmental policy field, typical actors include governmental actors on different levels (e.g. the national department for environment or a regional environmental agency), civil society actors (e.g. associations concerned with nature conservation) or market actors (e.g. tourism associations or agricultural companies) (van der Zouwen 2006, p. 28). Actors pursuing the same or complementary policy goals may form coalitions to engage more successfully in policy processes and strategically advance their goals. According to Arts and van Tatenhove (2004, p. 342), “[a] policy coalition consists of a number of players who share resources and/or interpretations of a policy discourse, in the context of the rules of the game.” In other words, coalitions may be the result of opportunistic interests or of similar ideologies. Coalitions may allow actors to gain legitimation and access to political arenas it would otherwise be denied or to pool resources (e.g. funds, staff, scientific findings) (Garrelts 2009, p. 57). The ability of actors to influence the policy domain is largely determined by their power and resources (see Section 3.2.2). Actor constellations may change over time as certain actors disappear from the political sphere or new coalitions are formed. Such shifts may be caused by changes to the other dimensions in the policy arrangement and can in turn influence the other dimensions.

This thesis seeks to identify those actors which initially promoted the GI concept in NW England, leading to its uptake in regional policy. The focus will thus be on regional actors which incorporated the concept into their activities and documents. By exploring the actors' activities in relation to GI, the manner in which they interpreted and shaped the concept will be scrutinised. In this dimension, the focus is on the actors which shaped regional policy on GI; as the regional planning level has since been disbanded, it offers a retrospective analysis of the regional context and actor constellation which allowed GI to gain traction in NW England.

In order to explore the associated research questions, a comprehensive literature review was carried out. Academic publications and internet databases on GI planning in NW England were reviewed in order to identify key players. A systematic search of published literature was performed using the following databases: ScienceDirect, Web of Science and Google Scholar. The key search term was 'green infrastructure', while results were screened for geographic markers referring to the UK or its individual regions. A snowball method was used, back-tracking the references in relevant publications, and forward-tracking in the databases to find newer literature citing key documents. In addition to academic publications, the literature review considered the online database "Green Infrastructure North West" (available at [www.greeninfrastructurenw.co.uk/](http://www.greeninfrastructurenw.co.uk/)) which compiles resources on GI planning on different scales, spanning from site-specific projects to international approaches. For this thesis, documents of the following scales were examined: "North West Region", "Sub Region/City Region" and "Local" ([www.greeninfrastructurenw.co.uk/html/index.php?page=resources](http://www.greeninfrastructurenw.co.uk/html/index.php?page=resources)). The resources of the database include GI plans and strategies, guidance documents for practitioners, interim reports of related projects and slides and reports of conferences and meetings in the region.

After identifying relevant actors, a targeted search was carried out to gather additional information about the role of each actor from academic books, journal articles and websites. As several of the investigated actors no longer exist, some authorities' websites are no longer available online. In such cases, the Internet Archive *Waybackmachine* ([www.waybackmachine.org](http://www.waybackmachine.org)) was used to gain access to the last available version of the website before its closure. The literature search was continued until a state of saturation was reached; this was declared when new documents yielded no additional findings and their bibliography revealed no new relevant references. The results relating to the dimension of actors and coalitions are presented in Chapter 4.

### **3.2.2 Power and resources**

The second dimension of policy arrangements considers resource dependencies and power relations between the actors. According to Arts and van Tatenhove (2004, p. 343), power can be understood in two ways: "on the one hand, as the ability of actors to mobilise resources in order to achieve certain outcomes in social relations, and, on the other, as a dispositional and a structural phenomenon of social and political systems." While the first understanding refers to the ability of individual actors to determine policy outcomes through the resources at their disposal, the second understanding refers to asymmetries in the distribution of resources and the dominance of certain actors over others on a societal level. Resources must not be of a monetary nature, but can also refer to competencies (e.g. scientific expertise), professional and personal connections, or established responsibilities (e.g. the responsibility to develop nature policy strategies or to monitor compliance with environmental legislation) (van der Zouwen 2006, p. 29).

The power relations of actors are dependent upon their resources; to a certain extent, actors depend upon each other for resources like money, information or political legitimacy (Lieverink 2006, p. 54). The scarcity of certain valuable resources (e.g. funding) may prompt actors to enter into new coalitions. There are interlinkages between resources and power and the dimension of discourse as actors may be able to use discourses to increase their political legitimacy or gain public attention for their objectives.

There are also links to the rules of the game as actors can use rules, e.g. on public participation, to gain access to a policy arena. On the other hand, the power to change the rules is reserved to specific actors (Lieverink 2006, p. 55).

Due to the limited scope of this thesis, the dimension of resources and power will not be described separately. Instead, the resources and power of the most important actors will be briefly assessed after describing their role in the policy arrangement. Similar to the methodology described for the dimension of actors, the dimension of resources and power is explored through a comprehensive literature review of academic publications, web research and the “Green Infrastructure North West” database ([www.greeninfrastructurenw.co.uk](http://www.greeninfrastructurenw.co.uk)). The web research on each of the scrutinised actors included the organisations’ websites and its archived versions where these were no longer available online. The results of the analysis can be found in Chapters 4.2.3 and 4.3.5.

### 3.2.3 Discourses

The third dimension of policy arrangements refers to discourses, which may be understood as “an ensemble of ideas, concepts and categories through which meaning is given to social and physical phenomena, and which is produced and reproduced through an identifiable set of practices” (Hajer and Versteeg 2005, p. 176). Dryzek (1997, p. 8) describes discourses as a “shared way of apprehending the world. Embedded in language, it enables those who subscribe to it to interpret bits of information and put them together into coherent stories or accounts.” In other words, discourses are actively produced by actors, as they seek to define problems and possible solutions as well as the role and responsibilities of certain actors (Lieverink 2006). In order to legitimise certain actions, actors construct and (re)produce rationality claims about appropriate, or logical, courses of action to achieve the best outcome (Rydin 2003, p. 4). Rationality claims influence policy-making as “[p]ublic policies are devised in response to a problem of perceived social, collective or public nature which is construed [...] to justify some form of intervention” (Colomb 2012, p. 28). This means that no issue is considered to be a public problem solely based on its inherent nature; instead, policy issues are socially constructed through discursive practises. In a policy arrangement, actors may promote conflicting discourses or enter into discourse coalitions when they interpret the substance of a specific policy domain in a similar way. While discourses are social and political constructs which are shaped by the practices of actors, they in turn become influential in shaping material practises and outcomes (Colomb 2012, p. 31). Powerful discourses may shape the actors’ interpretation of the policy field and which actors are considered legitimate in the policy process.

In relation to environmental policy and planning, discourses range from comprehensive theories to popular buzzwords. While the character, content and scope of such discourses differs significantly, all incorporate interpretations of environmental problems and anticipate appropriate policy responses. For instance, the theory of political ecology describes ecological degradation as a result of capitalism; Consequently, it can only be overcome by changes to the economic system. In contrast, ecological modernisation does not interpret environmental problems as a result of the economic system; their solution can thus be found in technological innovation within the current economic system (Arts *et al.* 2000, p. 63).

In the thesis, this dimension will be explored to determine the dominant discourse on GI in NW England. In a second step, the relationship between this GI discourse and dominant discourses about political ideology and the role of the environment and sustainability in planning will be scrutinised. In other words, the key storylines of the GI discourse will be carved out to determine parallels to related political discourses. While the PAA does not set out a clear methodology for the analysis of discourses, this study employs two types of sociological discourse analysis. Firstly, a qualitative content analysis will be carried out to identify the main storyline of GI plans and frameworks. Secondly, a contextual analysis will explore how the GI discourse fits into a larger context of overarching discourses.

The qualitative content analysis will encompass GI frameworks and strategies which have been developed on the local and city-regional level in NW England (see Table 3.2). While it is recognised that GI strategies and frameworks cannot reflect the complete GI discourse, they are used as proxies to represent the dominant discourse. Having been subject to public consultation, the documents are considered to reflect a position on GI which was able to overcome competing storylines. While it does not necessarily reflect the position of all actors, it reflects the view expressed by those in a position of power to create policy documents. In this dimension, the evolution of the GI discourse is understood as an open-ended process, where the GI strategies and plans provide a snapshot of its current form.

**Table 3.2 GI frameworks and strategies examined through content analysis**

| Strategy  | Associated documents   |
|---|--|
| Greater Manchester Green Infrastructure Framework                   | <ul style="list-style-type: none"> <li>▪ GI framework (final report) (AGMA 2011)</li> <li>▪ GI action plan (draft) (AGMA 2012)</li> </ul>  |
| Manchester Green and Blue Infrastructure Strategy (draft version)   | <ul style="list-style-type: none"> <li>▪ GI strategy (draft) (MCC 2015)</li> <li>▪ Technical report (BDP. <i>et al.</i> 2015)</li> </ul>   |
| Liverpool City Region and Warrington Green Infrastructure Framework | <ul style="list-style-type: none"> <li>▪ Summary document (The Mersey Forest 2014b)</li> <li>▪ Technical document (The Mersey Forest 2014a)</li> <li>▪ Action plan (The Mersey Forest 2013a)</li> </ul>  |
| Liverpool City Green Infrastructure Strategy                        | <ul style="list-style-type: none"> <li>▪ Executive summary (The Mersey Forest 2010b)</li> <li>▪ Technical document (The Mersey Forest 2010c)</li> <li>▪ Action plan (The Mersey Forest 2010a)</li> </ul> |

The qualitative content analysis was informed by Wiering and Arts' (2006, p. 329) understanding of discourses as three-layer systems, which guided the coding and categorisation of relevant units of information. According to the authors, discourses are made up of ontological, normative and strategic layers. The ontological layer sets out a specific perspective on reality and frames challenges which must be overcome. The normative layer includes visions, goals or ideals, while the strategic layer outlines how the vision can be achieved. Table 3.3 shows the categories which were selected for each discourse layer. After a close reading of the documents, relevant text passages were coded with one or more categories using the data analysis software MAXQDA 11.

**Table 3.3 Coding categories for the textual analysis of GI strategies and frameworks**

| Discourse layer | Categories                       |
|-----------------|----------------------------------|
| Ontological     | Description of status quo        |
|                 | Key challenges                   |
|                 | Context of the policy document   |
| Normative       | Overall vision                   |
|                 | Specific goals or aims           |
| Strategic       | Potential of GI                  |
|                 | Responsibilities                 |
|                 | Priorities (spatial or thematic) |

This methodology was deemed more suitable than a quantitative content analysis due to the limited body of literature as well as their heterogeneous comprehensiveness and level of detail. For each GI strategy or framework, the main storyline was explored and documented with tabular overviews. These

tables and the coded fragments on which they are based are listed in Appendices A and B.<sup>1</sup> The storylines are summarised in Chapter 5.2.

After characterising the GI discourse, a contextual analysis will be performed to shed light on the wider context, or “the space in which the discourse has emerged and in which it acquires meaning” (Ruiz Ruiz 2009, p. 27). This perspective recognizes that discourses are “produced by subjects who are immersed in a specific time and place within a given symbolic universe” (Ruiz Ruiz 2009, p. 27). Rather than being autonomous, discourses exist in relation to others and include references to or elements of external discourses. In this thesis, the contextual analysis provides insights into other powerful discourses which have influenced UK planning in the last decade. A comprehensive literature review was performed to identify prominent policy and planning discourses during the 2000s and 2010s, the period in which the GI discourse took shape in NW England. After reviewing general textbooks on UK planning (Tewdwr-Jones 2012, Nadin and Stead 2014, Cullingworth *et al.* 2015), key themes were further explored through targeted literature research. As described in Section 3.2.1 a snowball method of back-tracking references and forward-tracking citations was used in several literature databases. Specific attention is devoted to the political ideologies of the Labour and Coalition administrations of the 2000s and 2010s and to the understanding of the environment, sustainability and sustainable development in planning discourses. Exploring the overarching political ideology sheds light on predominant governance ideals, which may be linked to the organisational aspects of the GI concept (e.g. the allocation of responsibility for the delivery of GI). Discourses about the environment, sustainability and sustainable development may be linked to the content of the GI concept if popular storylines are reflected in the GI strategies and frameworks. The empirical results of the PAA’s dimension of discourses are presented in Chapter 5.

### 3.2.4 Rules of the game

The final dimension of policy arrangements concerns the ‘rules of the game’. Within each policy domain there are both formal and informal rules which define how policies have to be formulated, how agendas should be communicated, how decisions are made and how measures are implemented (Lieberink 2006, p. 56). The rules thus regulate “how politics is played, which norms are legitimate, and how policy outcomes are achieved, e.g. by which procedures, by which allocation of tasks, and by which division of competencies between actors and organisations” (Arts *et al.* 2000, p. 61). Rules determine which actors are considered legitimate and are allowed to enter the policy arena. In turn, the rules may be influenced by changing discourses about governance and the ‘right’ relationship between state, market and civil society (Arts *et al.* 2000, p. 62).

In this thesis, the rules of the game will be analysed with special attention to three aspects. Firstly, the characteristics and recent reforms of the UK planning system will be explored to understand how they may have shaped the evolution of the GI concept. Secondly, current modes of urban and regional governance will be outlined. Finally, the rules guiding the implementation of GI planning will be touched upon by reflecting on proposed funding mechanisms. This is particularly relevant because debates about preferred or indispensable funding mechanisms may offer further insight into the informal rules guiding the behaviour of local actors. In order to tackle these issues, a literature review was performed. General textbooks on UK planning (Tewdwr-Jones 2012, Nadin and Stead 2014, Cullingworth *et al.* 2015) were used as a starting point to identify main themes, which were then explored targeted literature research. The presentation of funding mechanisms draws heavily on a recent study by Mell (2016). The results relating to the dimension of rules of the game are documented in Chapter 6.

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<sup>1</sup> The original coded dataset can be found on the enclosed CD-ROM as a MAXQDA exchange file.

## 4 Actors and coalitions

### 4.1 Introduction

After outlining the research questions and methodology in the previous chapter, Chapter 4 presents the findings relating to the dimension of actors and coalitions. The aim was to determine the main advocates of GI in NW England and to describe how their activities put GI on the political agenda. A secondary aim was to assess the key actors' power and resources in order to shed light on their motivations and ability to shape the regional debate on GI. While it is recognised that national actors (e.g. the government agency Natural England or NGOs) also influenced this debate, the focus is placed solely on regional actors to illustrate how the particularities of NW England's actor constellations allowed the GI concept to flourish more so than in other English regions.

As a result of a comprehensive literature review and web research, it was determined that Community Forests were heavily involved in the promotion of the GI concept in NW England. The Mersey Forest in particular has been a forerunner in supporting GI in the region (Thomas and Littlewood 2010, Mell 2011, p. 433, Davies 2014, Gill *et al.* 2015). While Community Forests initiated the discussion on GI by bringing together stakeholders, GI took root in regional planning because regional authorities embraced the concept in their formal plans and activities. Consequently, the main players who embraced GI in NW England were Community Forests and regional authorities, the Northwest Regional Development Agency (NWDA) and the North West Regional Assembly (NWRA). Consequently, Chapters 4.2 and 4.3 will characterise the nature and organisation of these actors before exploring their role in GI policy-making and planning and determining their relative power and resources. While Community Forests and regional authorities were determined as key actors in the policy sphere, GI has also long been discussed at academic institutions in the study region. Against this backdrop, the research on GI at these universities will be explored in Chapter 4.4, comparing academic and policy understandings of the concept.

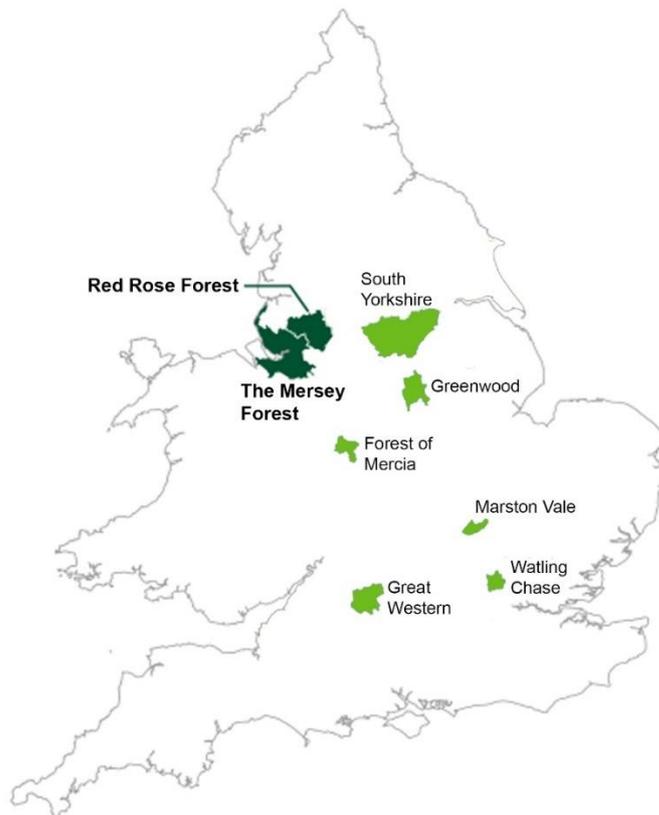
The following sections will shed light on the complex entanglements of regional actors in the promotion of GI and demonstrate the different emphases of their engagement with the concept. In addition to exploring how each individual actor took up GI in their activities and publications, their interpretations of the concept will be compared. The investigation into regional actors' power and resources will allow first inferences about why particular understandings and storylines became more prominent than others. It will also be scrutinised how the interpretations of GI varied between the academic and policy spheres in NW England. The findings relating to the dimension of actors and coalitions will be discussed in Chapter 4.5.

## 4.2 Community Forests

### 4.2.1 General description

Before exploring the specific role of Community Forests in relation to the GI debate, their character and history will be briefly described in this section. Section 4.2.2 will outline how their activities embraced the GI concept, while Section 4.2.3 attempts an evaluation of their power and resources.

England's Community Forests programme was launched in 1989 to tackle derelict landscapes in urban fringe areas and "to create substantial opportunities for recreation, employment and education with additional environmental and aesthetic benefits" (Putwain *et al.* 2003, p. 165). Funded by two governmental bodies (the Countryside Commission and the Forestry Commission) twelve Community Forests were created around some of England's largest conurbations by 1994 (Davies 2014, p. 48). Figure 4.1 depicts the eight Community Forests which still exist in England today.



**Figure 4.1 England's Community Forests**

Community Forests in NW England are designated in dark green and bold letters (adapted from <http://www.communityforest.org.uk/yourlocalforest.htm>).

At its outset, the Community Forest programme targeted highly populated areas scarred by their industrial past, with a tree cover far below the national average and an abundance of derelict and contaminated land (Dudley *et al.* 2003, p. 109f, Putwain *et al.* 2003, p. 165f). The aim was to regenerate these landscapes in a way that benefitted local communities and enabled their multifunctional use (Davies 2014, p. 46). According to Dudley (2003, p. 109), "Community Forests have a role to play in drawing together economics, people and enhancing habitats." What is more, "[i]t could be argued that the habitat work is a by-product of the socio-economic outputs Community Forests strive towards" (Dudley 2003, p. 115). The programme thus embraced the role landscape enhancement played in attracting business and inward investment (Dudley 2003).

Community Forests were based on partnerships between national sponsors, local authorities and other agencies, encouraging landscape-scale decision-making through cooperation across municipal boundaries (Jones *et al.* 2005, p. 199). The programme has been praised for successfully restoring landscapes on the urban fringe throughout the 1990s (Davies 2014). Putwain *et al.* (2003, p. 165) describe the Community Forests programme as "one of the most significant environmental projects to be launched during the 20th century, potentially bringing the benefits of amenity woodland to more than 20 million people, encouraging urban renaissance and regional investment". However, the role of Community Forests has diminished somewhat and its focus has shifted since the turn of the century (Mell 2011, Davies 2014). These dynamics will be further discussed in Section 4.2.3, which explores the power and resources of Community Forests.

NW England is home to two Community Forests: The Mersey Forest and Red Rose Forest are located between Liverpool and Manchester (see Figure 4.1). The Mersey Forest is the largest of England's Community Forests, covering an area of over 500 square miles in Merseyside and North Cheshire (The Mersey Forest n.d.b). The Red Rose Forest comprises central and western parts of Greater Manchester

and covers almost 292 square miles (Red Rose Forest 2010). They are based on core partnerships between local authorities and government agencies (Natural England, the Forestry Commission, and the Environment Agency). The wider partnership includes other public sector actors, landowners, business and the economic development sector, government agencies, environmental and voluntary organisations, schools, the health sector and private individuals. Sharing a boundary, the Mersey Forest and Red Rose Forest also closely cooperate with each other (Red Rose Forest 2010, The Mersey Forest 2014c). The Mersey Forest and Red Rose Forest both aim to benefit the environment as well as local communities and economies (The Mersey Forest n.d.b, Red Rose Forest 2012). Table 4.1 provides an overview of the activities prioritised by both forests, reflecting the joined consideration of social, economic and environmental goals.

**Table 4.1 Key activities and goals of the Mersey Forest and Red Rose Forest.**

Coloration of environmental (green), social (blue) and economic goals (red) added by author (Sources: Red Rose Forest 2012, The Mersey Forest n.d.a).

| The Mersey Forest  | Red Rose Forest  |
|--|--|
| <ul style="list-style-type: none"> <li>▪ Strengthening and engaging communities</li> </ul>                         | <ul style="list-style-type: none"> <li>▪ Adapting to and mitigating the effects of Climate Change</li> </ul> |
| <ul style="list-style-type: none"> <li>▪ Keeping people fit and healthy</li> </ul>                                 | <ul style="list-style-type: none"> <li>▪ Promoting physical and mental health</li> </ul>                     |
| <ul style="list-style-type: none"> <li>▪ Natural Play (greener school environments)</li> </ul>                     | <ul style="list-style-type: none"> <li>▪ Reducing waste and promoting recycling</li> </ul>                   |
| <ul style="list-style-type: none"> <li>▪ Creating and managing a well-wooded landscape</li> </ul>                  | <ul style="list-style-type: none"> <li>▪ Developing sustainable transport</li> </ul>                         |
| <ul style="list-style-type: none"> <li>▪ Green infrastructure planning</li> </ul>                                  | <ul style="list-style-type: none"> <li>▪ Improving biodiversity</li> </ul>                                   |
| <ul style="list-style-type: none"> <li>▪ Boosting biodiversity</li> </ul>  | <ul style="list-style-type: none"> <li>▪ Developing community cohesion and engagement</li> </ul>             |
| <ul style="list-style-type: none"> <li>▪ Climate change adaptation</li> </ul>                                      | <ul style="list-style-type: none"> <li>▪ Improving educational attainment</li> </ul>                         |
| <ul style="list-style-type: none"> <li>▪ Attracting investment and increasing land and property values</li> </ul>  | <ul style="list-style-type: none"> <li>▪ Improving the local economy</li> </ul>                              |
| <ul style="list-style-type: none"> <li>▪ Timber industry, job creation and partnerships with businesses</li> </ul> |  |
| <ul style="list-style-type: none"> <li>▪ Tourism, recreation and leisure</li> </ul>                                |  |
| <ul style="list-style-type: none"> <li>▪ Value for money</li> </ul>  |  |

As Table 4.1 shows, the Mersey Forest explicitly describes GI planning as one of its key activities. Indeed, Community Forests have played an important part in the establishment of the GI concept in NW England and have been involved in various projects relating to GI. The following section sheds light on their most important activities and role in the promotion of GI.

### 4.2.2 Community Forests’ role in GI policy-making and planning

The Mersey Forest and Red Rose Forest have been among the earliest and most vocal proponents of the GI concept. The Mersey Forest in particular has managed to secure its position as key expert on GI planning in NW England and beyond (Deas *et al.* 2015, Gill *et al.* 2015). The work of both Community Forests has influenced debates about GI planning and implementation on the regional, city-regional and local level. Moreover, through involvement in European projects, their experiences have been carried beyond national borders. Both Community Forests are involved in the GI planning and implementation

on the ground. Beyond their individual activities, they have been instrumental in bringing together regional stakeholders around GI.

The Mersey Forest developed scientific tools to underpin the GI debate and was thus able to significantly shape the debate and policy development. It developed a mapping methodology which can be used “for identifying both the location and function of green infrastructure, which lays the basis for further work to understand and measure the different types of value the green infrastructure provides to the community” (Butlin *et al.* 2011, p. 5). This methodology has been applied on different spatial levels in NW England, e.g. for Liverpool City Region GI Framework and Liverpool’s GI Strategy, both of which were produced by the Mersey Forest (see Chapter 5.2). From 2011 to 2014, the Mersey Forest was involved in the INTERREG IVB project GIFT-T! (*Green Infrastructure for Tomorrow - Together!*), disseminating their GIS-based mapping methods to identify where GI interventions can generate maximum benefits (The Mersey Forest n.d.a). Consequently, the mapping methodology has been carried to various European countries.

In addition to their technical contributions, the Mersey Forest became a prominent advocate for the GI concept, successfully lobbying for its inclusion in NW England’s Regional Spatial Strategy (RSS) and Regional Economic Strategy (RES) (Gill *et al.* 2015). As a forerunner in GI planning, the Mersey Forest encouraged regional authorities to take up GI in plans, projects and programmes. This in turn created demand for their expertise, as the Mersey Forest was commissioned to realise the GI strands of several regional programmes and plans further explored in Chapter 4.2 (e.g. Natural Economy Northwest, North West Climate Change Action Plans).

While the role of the Red Rose Forest has not been as prominent as the Mersey Forest’s, it has also recognised GI as a key field of work. The Red Rose Forest describes its role in respect to GI as follows:

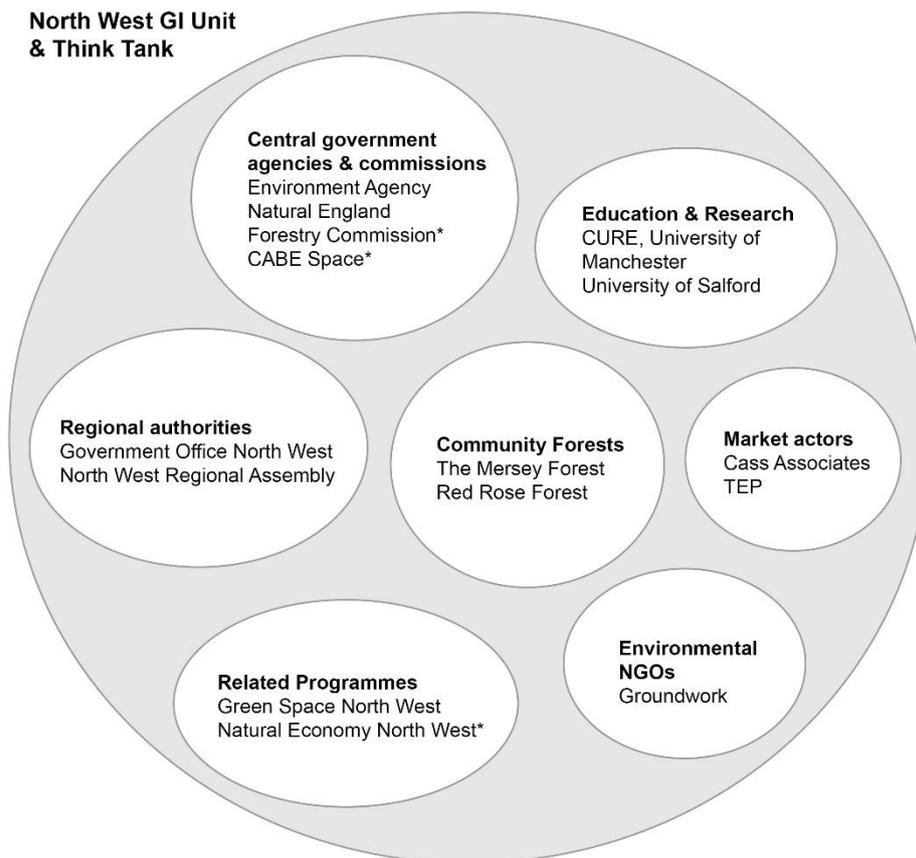
- “Advising on and promoting Green Infrastructure as a tool for Climate Change adaptation/mitigation
- Promoting Green Infrastructure through the Planning Process
- Creating new Green Infrastructure
- Improving the management of existing Green Infrastructure
- Supporting the development of quality GI within Growth Areas/Points
- Engaging communities and creating new Green Infrastructure through the Green Streets approach” (Red Rose Forest 2011)

The Red Rose Forest’s work on GI is particularly focused on urban areas, i.e. the planting of new street trees as part of its Green Streets project, and highlighting its potential for climate change adaptation. Both Community Forests have thus been heavily involved in the GI debate; The Mersey Forest has significantly shaped GI policy-making by lobbying, developing methodology and creating GI strategies on behalf of local authorities. The role of the Red Rose Forest has been more practical, taking on an advisory role and contributing to the implementation of GI on the ground.

Beyond these individual activities, the Community Forests initiated three coalitions which have been instrumental in the legitimisation of the GI concept in NW England: The NW GI Unit, Think Tank and Forum. The NW GI Unit was established in 2005 “to deliver and develop the concept of Green Infrastructure” and “to circulate information and stimulate debate among local and regional stakeholders” (Red Rose Forest 2011). The GI Unit engaged in “advocacy, development of evidence and methodologies, information sharing, and supporting projects.” (The Mersey Forest 2010c, p. 19). While led by the Community Forests, the GI Unit also included a number of government, market and civil society partners and received funding through Natural England, the main government agency for nature and countryside protection (Red Rose Forest 2011). The GI Unit went on to establish the NW GI Think Tank, a group of practitioners, academics, policy makers and agencies which aimed “to provide cross-sectoral technical advice and feedback on developing regional green infrastructure approaches and activities” (NWGITTT

2008, p. 31). The Think Tank published influential guidance on GI for local planners, most notably the 2008 NW GI Guide (NWGITT 2008). Figure 4.2 provides an overview of the partners which were involved in the GI Unit and Think Tank, which largely overlap.

Community Forests also chaired the NW GI Forum, which provided “a place for exchange of knowledge and information to a wider group of stakeholders in the region.” (Kazmierczak and Carter 2010, p. 98). The GI Forum was an informal platform for discussions and networking relating to GI, inviting a wider circle of interested parties from the public, private and community sector.



**Figure 4.2 Actors involved in the North West GI Unit and Think Tank.**

Actors marked by an asterisk were only involved in the Think Tank, not in the GI Unit (own illustration based on NWGITT 2008).

### 4.2.3 Power and resources of Community Forests

While the Community Forests programme is generally considered a success, it has been grappling with a number of issues since the turn of the century. The most critical challenge concerns the diminishing interest and financial support from national authorities, which has forced Community Forests to seek new sources of funding (Davies 2014, p. 50f). The activity base of Community Forests was increasingly called into question as the supply of land in need of restoration declined. While the programme’s landscape-based approach had strengthened cooperation across municipal borders, its added value became less justifiable as the 1997 Labour government advanced comprehensive regional planning (Davies 2014, p. 50f).

As a result, Community Forests faced a crisis of legitimisation in the 2000s. Their continued existence was under threat as the Government decided to phase out national funding by 2007 and local councils

were also cutting back their financial support (Mell 2011, p. 432, Davies 2014, p. 50f). Consequently, Community Forests throughout England faced financial hardships and were forced to find new ways to fund their activities. For instance, Community Forests in North East England set up a trading arm to generate additional income through “projects such as a tree nursery, environmental training, working with the Probation Service to involve offenders in green works, and running a green exercise programme to improve people’s health” (Henderson 2008). Community Forests thus reacted by branching out in an attempt to keep their activities running. It is against this backdrop that Community Forests in NW England established their role as GI experts. Mell (2011, p. 441) notes that “green infrastructure has aided the financial transition and supported the diversification of the Mersey Forest’s core objectives”. The Mersey Forest has thus expanded its field of activity in order to match current concerns in the region, while allowing it source funding and increase their influence through the development of technical methods and a scientific evidence base on GI.

Although Community Forests had limited financial resources at their disposal in the early 2000s, their experience and skills were valuable assets. Community Forests were experienced in the cooperation with a variety of actors and had already established a strong network of contacts across local authority boundaries (Mell 2011). Due to the technical skills of its staff, the Mersey Forest was able to develop GIS-based mapping methods for GI planning (Butlin *et al.* 2011). This allowed it to secure a position as GI experts and consultants. As GI became a topic of interest on the European level, the Mersey Forest was able to participate in an INTERREG IVB project, which opened up new opportunities to secure funding. The central role of Community Forests in the promotion of the GI concept in NW England can thus be linked to shifts in resources and power relations. Faced with reduced financial resources, the Community Forests activated their resources in the form of know-how, experience and established networks to redefine their field of work. The Mersey Forest in particular has consequently become a key player in the GI arena, using their expertise to attract new sources of funding and to influence the regional debate.

### 4.3 Regional authorities: The North West Regional Development Agency, Regional Assembly and joint planning efforts

#### 4.3.1 General description

Under the Labour governments from 1997, the regional tier of planning was strengthened, resulting in the introduction of Regional Development Agencies and Regional Assemblies. In the study region, the North West Development Agency (NWDA) and the North West Regional Assembly (NWRA) were set up in 1998. Over the following decade, regional planning authorities have taken various forms; Table 4.2 provides an overview of the rise and fall of regional authorities in NW England.

**Table 4.2 Evolution of regional planning authorities in NW England**  
(adapted from Deas et al. 2015, p. 27)

|        |  |
|--------|--|
| 1998   | Establishment of <b>NWDA</b> (economic development agency) and <b>NWRA</b> (indirectly elected regional chamber) |
| 2008   | Abolition of NWRA and establishment of the <b>North West Regional Leaders Board 4NW</b>                          |
| 2010-2 | Coalition government repeals statutory regional planning & abolishes regional planning authorities               |
| 2010   | 4NW significantly downsized from 32 to 3 staff members & renamed <b>NW Regional Leaders Board</b>                |
| 2011   | <b>Local Enterprise Partnerships</b> replace Regional Development Agencies                                       |
| 2012   | Abolition of NWDA  |

The NWDA consisted of 15 board members, eight of which represented the private sector (Deas 2006, p. 87). Its goal was to promote economic development and regeneration in the region, linking Government policies with the needs of businesses and increasing the region's business-friendliness. The NWDA was tasked with the production of Regional Economic Strategies which aimed to strengthen dynamic growth sectors, focus investment in strategic sites and support skill development of the workforce and small and medium-sized enterprises. The NWDA was also involved in physical development, supporting large scale property projects and regeneration partnerships (Deas 2006, p. 87).

In parallel with the introduction of Regional Development Agencies, Regional Assemblies were created and tasked with the production of Regional Spatial Strategies (Thomas and Littlewood 2010, p. 207). In the study region, the NWRA served "to provide a forum for considering regionally significant issues; liaise with central government and the EU Commission to present the regional case; build identity within the region; and work collaboratively with other agencies" (Deas 2006, p. 87). The boards of regional assemblies consisted of councillors from the local councils of the region. Regional Assemblies were expected to cooperate closely with Regional Development Agencies, although the relationship between both regional bodies was often fraught with difficulties in practise (see Section 4.3.5).

Regional authorities also cooperated in the production of plans, such as the NW Climate Change Action Plans and an integrated Regional Strategy. The following sections (4.3.2 – 4.3.4) explore how GI was taken up in the plans, projects and programmes of regional authorities.

### **4.3.2 The Northwest Regional Development Agency's role in GI policy-making and planning**

While its focus was clearly on economic development, the NWDA embraced the GI concept and commissioned a large number of related publications and activities. According to Dudley (2003, p. 110), the NWDA was progressive as it acknowledged "the value of the environment and its place amongst business investment and retention and communities". In order to understand how the NWDA engaged with GI, I will first introduce the Newlands project. While it does not explicitly refer to GI, it offers insights on existing alliances and experiences in the field of landscape regeneration. The term GI appears in the North West Regional Economic Strategy of 2006, in turn sparking the Natural Economy Northwest programme, which focused on the economic benefits and monetarisation of GI. Finally, the report "Adapting the Landscape" brought the GI concept into the realm of private development, as it shaped the environmental measures of one of the UKs largest and most expensive development projects. In the following sections I will outline the aforementioned programmes, projects and plans and their perspective on GI. This analysis demonstrates how the NWDA took up the GI concept and promoted it as a compatible element to achieve its economic ambitions.

#### **The Newlands programme**

Although the initiation of the Newlands programme predates the emergence of the GI concept in NW England, it demonstrates that economic development and environmental restoration are closely intertwined in the region. Newlands is referenced in many GI strategies and guidelines in NW England (e.g. AGMA 2011, MCC 2015) and beyond (e.g. South Yorkshire Forest Partnership 2011). Moreover, it was cited as a good practise example to achieve regeneration through GI by the West Midlands Regional Committee (House of Commons 2010).

Funded by the NWDA, Newlands has transformed derelict land in NW England into community woodlands since 2003 (Forestry Commission n.d.). The vision of the project is "to improve the regions working and living environment and to make the north west a more exciting and viable choice for investment

opportunities" (Dudley 2003, p. 112). The project was designed to meet both socio-economic and environmental agendas. To this end, areas of derelict, underused and neglected land were selected based on an assessment of the potential social, economic and environmental benefits as well as public access to the site. Newlands reclaimed such sites to improve the region's image and quality of life, encourage investment and increase recreational facilities (Dudley 2003, p. 110f). While Newlands initially restored large-scale brownfield sites, the project is now targeting smaller sites, including tree-planting along streets. Its focus has shifted to place "an even greater emphasis on the economic outcomes by actively seeking out opportunities where its brand of regeneration could result in direct economic development, including the creation of jobs, tourism revenue and improved house prices" (newlands 2009, p. 3). While socio-economic concerns were always a part of the programme's concept, the focus on economic added-value of interventions has increasingly taken centre-stage. The implementation on the ground is mainly carried out by the region's Community Forests, the environmental NGO Groundwork North West, landowners and Forest Enterprise England, an executive agency sponsored by the Forestry Commission (Forestry Commission n.d., Dudley 2003, p. 110). Newlands thus demonstrates the well-established cooperation between regional actors in the pursuit of economic development and recovery of degraded landscapes.

### **Northwest Regional Economic Strategy**

As mentioned above, the NWDA produced NW England's Regional Economic Strategy (RES) which set out a vision and objectives for the region's economic development. The 2006 RES was one of the first regional policy documents to mention GI (Gill *et al.* 2015, p. 128). According to Gill *et al.* (2015, p. 128), the Mersey Forest lobbied to embed GI in this strategy because "it shaped the economic direction of the region, with a significant influence over public sector funding." The inclusion of GI in the Northwest RES marked the beginning of the NWDA's intense engagement with the GI concept.

The strategy's vision was to create "[a] dynamic, sustainable international economy which competes on the basis of knowledge, advanced technology and an excellent quality of life for all" (NWDA 2006, p. 6). This was to be achieved through the improvement of productivity and growing the market, increasing size and capability of the region's workforce and securing conditions for sustainable growth and private sector investment. The strategy recognises the environment as one of several drivers creating the conditions for sustainable growth, arguing that region must focus on improving the environment, "including capitalising on our natural assets, the quality of the visitor experience and the quality of the physical environment" (NWDA 2006, p. 44).

Consequently, the strategy proposed that regional and local bodies take action to "[d]evelop the economic benefit of the region's natural environment through better alignment of environmental activities and economic gain" (NWDA 2006, p. 48). The natural environment is described as "a key under-exploited economic resource for the region and part of our quality of life. It is important to nurture the natural resources of the region and to develop a strategy for green infrastructure and transport corridors" (NWDA 2006, p. 48). In order to deliver this action, the Natural Economy Northwest programme was created, which will be described in the following.

### **Natural Economy Northwest**

In order to deliver on the environmental aspects of the RES, the Natural Economy Northwest (NENW) programme was funded by the NWDA, Natural England and SITA Trust from 2007 to 2010. It aimed "to identify, demonstrate and promote the economic value of the region's unrivalled natural environment" (NENW n.d., p. 3). Involving a range of stakeholders from the public, private and voluntary sectors, the programme brought agencies responsible for both natural environment and economic development to the table (Gill *et al.* 2015, p. 128). The core vision of NENW was to enable "a prosperous economic

future with a thriving natural environment for the Northwest” (Environmental Economy of Northwest England 2012). It aligned environmental measures with economic benefits by highlighting the economic value of the natural environment, e.g. through an evidence base of economic benefits associated with investments in the natural environment.

NENW included a strand on GI which was guided by the Mersey Forest. Although the understanding of GI was initially limited to green tourism, a broader understanding of the concept was successfully lobbied for by the Mersey Forest (Gill *et al.* 2015, p. 128). Consequently, GI was promoted as a critical component of the urban fabric, which should be planned, managed and invested in across different spatial scales. The inclusion of GI in grey infrastructure projects was advocated as a measure to increase sustainability. Amongst the most influential outputs of the programme is the classification of eleven economic benefits of GI which has become widely politically accepted in the region, is frequently quoted in GI guidance documents and has been integrated in the Mersey Forest’s GI mapping methodology (see Table 4.3) (Butlin *et al.* 2011).

**Table 4.3 The economic benefits of GI**

(Source: ECOTEC 2008, p. ii)

|   |
|---|
| 1. Climate change adaptation and mitigation |
| 2. Flood alleviation and water management   |
| 3. Quality of place                         |
| 4. Health and well-being                    |
| 5. Land and property values                 |
| 6. Economic growth and investment           |
| 7. Labour productivity                      |
| 8. Tourism                                  |
| 9. Recreation and leisure                   |
| 10. Land and biodiversity                   |
| 11. Products from the land                  |

The programme also resulted in tools to quantify and monetise GI benefits, such as the GI valuation toolkit and case studies on the monetary return of GI investments (GENECON LLP 2010). These tools highlighted how project appraisers and investors may profit from GI interventions (GENECON LLP 2010).

Summing up, NENW raised awareness for the economic benefits of GI interventions by categorising them, developing an evidence base and creating tools to monetise the value of GI interventions in new developments. NENW emphasised that natural environment projects should strive to provide multiple benefits to society and create socio-economic added value. Economic development and GI development were portrayed as complementary rather than contradictory. One of the lessons drawn from the programme was that “[b]usinesses can benefit from the natural environment, and business is part of the solution for sustainability” (Environmental Economy of Northwest England 2012).

**Adapting the Landscape**

The NWDA also commissioned the 2009 report “Adapting the Landscape from Liverpool to Manchester”. This report sought to establish “a policy framework for green infrastructure investment that can support improvements in quality of life, tackle climate change and underpin economic growth by enhancing the resilience of natural and man-made systems” (NWDA 2009, p. 8). The report is remarkable because it addressed environmental issues on a landscape level, focusing on the Lower Mersey Basin watershed

which links Liverpool and Manchester rather than on a fixed administrative boundary. In this region, informal alliances had promoted efforts to clean up the Mersey River for decades, pushing for both economic and environmental regeneration (Deas *et al.* 2015, p. 26). A second peculiarity of the report is its impact on private development: It became the basis of the environmental work carried out by Atlantic Gateway, a large-scale redevelopment project around the Port of Liverpool and the Manchester Ship Canal led by the UK's largest property investment company. Required to invest in environmental improvements, the developers embraced the NWDA's approach to GI to guide their environmental projects, which strive to create "a high quality environment attractive to investors, visitors and businesses alike" (Atlantic Gateway 2014, p. 12).

Summing up, the NWDA has embedded the GI concept in both formal planning documents (NWDA 2006), informal guidance (NWDA 2009) and programmes like NENW. While its Newlands programme did not employ the terminology of GI, it is frequently cited as a model of GI planning. Like the Community Forest programme, Newlands demonstrates that landscape restoration and economic development have been considered together even before the rise of the GI concept. Through the NENW programme, the NWDA commissioned a range of reports which served to inform the regional GI debate. In these documents, the natural environment was generally framed as an economic resource and much attention was devoted to the monetisation of GI interventions. While the NWDA included GI in its activities in various ways, it was not the only regional authority which engaged with the concept: The role of the NWRA will be explored in the following.

### **4.3.3 The North West Regional Assembly's role in GI policy-making and planning**

The NWRA embraced the GI concept by including it in NW England's Regional Spatial Strategy (RSS). As in the case of the RES, the uptake of the GI concept in the 2008 RSS has been attributed to the lobbying activities of the Mersey Forest (Gill *et al.* 2015, p. 129). The RSS includes a policy on GI, defining it as "the region's life support system – the network of green and blue spaces that lies within and between the North West's cities, towns and villages which provides multiple social, economic and environmental benefits" (GONW 2008, p. 94). This reflects the definition of the North West GI Guide published by the region's GI Think Tank (NWGIT 2008). The GI policy of the RSS specifies that plans, strategies, proposals and schemes produced on the regional and sub-regional scale should include measures aimed at

- "conserving and managing existing green infrastructure;
- creating new green infrastructure;
- enhancing its functionality, quality, connectivity and accessibility" (GONW 2008, p. 94).

According to the RSS, GI can provide environmental as well as socio-economic benefits, support public health, increase the liveability of communities, protect biodiversity and support climate change adaptation and mitigation. Moreover, the importance of GI for biodiversity protection is stressed and local authorities are called upon to "ensure that a key aim of green infrastructure is the maintenance and improvement of biodiversity" (GONW 2008, p. 94). It is recognised that the creation of alternative recreational space can reduce pressure on sensitive ecological sites. The RSS calls for a strategic approach, rather than "small piecemeal provision of open space in association with individual developments" (GONW 2008, p. 95). It is specified that the identification, management and creation of GI necessitates an integrated and cross-disciplinary approach. Planning authorities should cooperate with bodies responsible for leisure, countryside and environmental management, and "identify partnerships at an appropriate scale to take forward green infrastructure planning" (GONW 2008, p. 94). The RSS did not explicitly require local authorities to include GI in their local plans or set out rules for GI planning, instead

stating that local authorities should aim to deliver GI. The GI Guide prepared by the NW GI Think Tank was cited as a source to support local delivery.

Summing up, the NWRA adopted the GI concept in the region's RSS, a statutory plan which provided a framework for development and investment in NW England. In comparison to the NWDA, the NWRA's position of GI was less focused on economic impacts while attaching greater importance to biodiversity. The NWRA also demonstrated an awareness of potential conflicts between recreational use and biodiversity conservation not found in the NWDA's documents. While the NWDA embraced GI as a concept to advance the region's competitiveness and focused on encouraging the private sector to deliver GI, the NWRA took a more critical view of relying on private development to provide new GI. Instead, the NWRA emphasised the need for wider partnerships and strategic approaches to GI delivery. While the NWDA and the NWRA thus took somewhat different stances on the role and delivery of GI, the authorities also produced a number of joint plans and documents. Two of these will be explored in the following section.

#### **4.3.4 Joint regional activities for GI policy-making and planning**

In addition to the individual work of the NWDA and NWRA, regional authorities have also cooperated on the production of policy guidance. In relation to GI, the region's integrated Regional Strategy and Climate Change Action Plans are particularly relevant and will be explored in this section.

##### **Future North West: Our Shared Priorities**

Shortly before regional planning was abolished by the Localism Act of 2011, the NWDA and 4NW prepared an integrated Regional Strategy which combined environmental, social and economic development concerns in a single plan, replacing RSS and RES (NWDA and 4NW 2010, p. 6). Although regional planning was abolished before the plan came into force, it was published as non-statutory guidance under the name of *Future North West: Our Shared Priorities* in 2010. The document identifies twelve priority areas, which need to be targeted to "achieve our aspirations to develop a world-class and resilient sustainable economy, attractive to private investment, with an excellent quality of life" (NWDA and 4NW 2010, p. 13). One of the priorities is to enhance the natural environment and resolve 'pinch points', where GI can unlock economic growth. Investment in GI is described to support regeneration and revitalisation of areas facing economic and social challenges (NWDA and 4NW 2010, p. 28). It is also noted that the resilience to climate change impacts of GI should be increased (NWDA and 4NW 2010, p. 19).

The role of GI in the strategy is limited; nevertheless, it reflects the NWDA's position on GI by focussing predominantly on GI's potential to safeguard and boost economic growth. Relying heavily on the private sector to deliver the document's vision, the strategic approach to GI delivery favoured by the NWRA is conspicuous by its absence.

##### **North West Climate Change Action Plan**

Regional and national authorities also cooperated on the production of Climate Change Action Plans for NW England, which refer to GI. Climate Change Action Plans (CCAPs) were published in 2006 and 2010 by the NWDA, NWRA (or its later incarnation, 4NW), the Government Office for the North West and the Environmental Agency (NWDA *et al.* 2006, 2010). The vision promoted in the 2006 CCAP was to achieve "[a] low carbon and well adapted Northwest by 2020" (NWDA *et al.* 2006, p. 6). While GI was mentioned in the plan, its role was limited: The 2006 CCAP called for further scoping studies to determine the link between GI and climate change, exploring both its potential to support adaptation and its vulnerability (NWDA *et al.* 2006, p. 3). This action was delivered by Community Forests North West,

which created a database on the role of GI in relation to climate change adaptation ([www.ginw.co.uk/climatechange](http://www.ginw.co.uk/climatechange)), and supported by the INTERREG IVC project GRaBS (see Chapter 4.4). In the scoping studies produced as part of the CCAP process economic considerations often played an important role. For instance, the report “*Critical climate change functions of green infrastructure for sustainable economic development in the North West*” stresses that GI supports climate change mitigation and adaptation, which in turn assists economic development (Gill 2008). In this context, ‘pinch points’ are identified, referring to areas where hurdles which impede economic investment may be overcome with GI solutions. For instance, attractive locations which are prone to flooding could be opened up for investment through GI interventions in upstream areas which reduce the risk of flooding (Gill 2008). In 2010, an updated and revised CCAP was published which maintains the same position on GI. Advocating the development of a regional adaptation framework outlining responses to climate change, the 2010 CCAP calls for the “regional assessment of the risks, opportunities and priorities for green infrastructure in adapting and mitigating for climate change” (NWDA *et al.* 2010, p. 19). Both CCAPs draw together the topics of climate change and regional economic development. While GI is described to strengthen climate change adaptation and mitigation, this is not merely presented as a goal in itself but as the basis for continued economic development and growth in the region.

The previous sections have demonstrated that the NWDA and the NWRA both took up the GI concept in their spheres of activity. The NWDA’s engaged intensively with the concept, including it both in plans and strategies as well as commissioning a range of reports and programmes. The NWRA’s activities have been comparatively meagre, although GI was also taken up in its RSS. In both cases, the regional authorities’ uptake of the concept has been linked to the lobbying activities of the Mersey Forest. However, it has also become apparent that their interpretations differed distinctly, as the focus was placed on GI’s contribution to economic growth by the NWDA, while the NWRA took a broader stance and considered biodiversity conservation to a greater extent. Whilst the NWDA emphasised the importance of private development in delivering GI, the NWRA promoted more strategic GI planning which involves a range of public, private and voluntary actors. In the outlined joint regional planning efforts, the NWDA’s perspective seems to dominate. The following section explores the power balance between regional authorities, suggesting why the NWRA’s interpretation of GI appears to have gained little traction.

#### 4.3.5 Power and resources of regional authorities

As mentioned above, the NWDA and NWRA were introduced by the Labour government in a bid to strengthen regional governance across England. Both were initiated to serve central government objectives and formally accountable to government. However, as non-elected bodies their regional accountability was limited (Thomas and Littlewood 2010, p. 207). The regional authorities were to remain a fixture of spatial planning in NW England for a decade. As political support for regionalism faded, the role of the organisations was repeatedly adjusted since the 1990s, culminating in their abolition by the 2010 Coalition government.

Comparing the NWDA and the NWRA, there are marked differences in the organisations’ power and resources. Deas (2006, p. 87) describes that by the middle of the organisations’ existence, the NWDA was the best-funded of England’s Regional Development Agencies. In the fiscal year 2003/04, the NWDA had a budget of £ 334 million, while the NWRA’s budget amounted to merely £ 2.3 million (Deas 2006, p. 87). This barely accounts for 0.7 percent of the NWDA budget in the same year. The NWRA thus had limited leeway to influence spatial planning in the region.

In 2007, a review of the regional planning tier by the Treasury led to the abolishment of the NWRA and its replacement with the North West Regional Leaders Board 4NW (see Table 4.2 on p. #). Simultaneously, the NWDA received more regional planning powers. Local councils have been critical of these

changes, lamenting the resulting “democratic deficit”, as the NWDA is essentially business-led compared to the indirectly elected NWRA (House of Commons 2009, p. 279). In the wake of these adjustments, the NWDA and 4NW were tasked with creating an integrated Regional Strategy. It was thus foreseen that the NWDA would take on a major role in regional planning, although it had previously been focused solely on economic development (House of Commons 2009, p. 278). However, the impact of these shifts should not be exaggerated, as the election of the Coalition government in 2010 was followed by the dismantling of the entire regional planning apparatus (see Chapter 6.2). The period from 2010 to 2012 saw the abolition of the NWDA and the drastic downsizing of 4NW. 4NW was renamed NW Regional Leaders Board, while its staff dropped from 32 to three in 2010 (VSNW 2010).

GI emerged as a popular concept at a time when both NWDA and NWRA were producing regional strategies and the concept has been embedded in both. As these strategies were produced for the first time, this process offered the opportunity to lobby for the inclusion of GI, as the Mersey Forest has successfully achieved. As described above, GI has been flexibly interpreted by both authorities, while the NWDA’s focus on the economic aspects of the concept appears to have dominated the regional debate. This can be explained by the waxing and waning of different regional authorities and their complex relationship. Indeed, it has been questioned whether Regional Assemblies were truly able to influence the work of Regional Development Agencies, as they lacked the authority of directly elected regional governments and were frequently dismissed as being “a toothless tiger” (Davoudi 2015b, p. 104). It is therefore unsurprising that regional planning in NW England was dominated by the NWDA which largely promoted GI as a tool to contribute to economic growth in the region.

#### 4.4 Universities in North West England

After exploring the role of Community Forests and regional authorities in relation to GI policy-making and planning, this chapter sheds light on the discussion of GI at NW England’s academic institutions. Two institutions have been instrumental in the generation of an evidence base around the GI concept. This chapter will provide an overview of relevant projects undertaken at the Centre for Urban and Regional Ecology at the University of Manchester and the University of Salford’s School of Environment and Life Sciences. The aim is to illustrate the understanding of GI promoted in these research projects.

According to Pauleit *et al.* (2011, p. 278), GI first gained attention in Greater Manchester through a research project carried out at the University of Manchester’s Centre for Urban and Regional Ecology. As part of a research programme on climate change impacts and adaptation, the project ASCCUE (*Adaptation Strategies for Climate Change in the Urban Environment*) was carried out from 2003 to 2006 (University of Manchester n.d., Gill 2006, p. 24f). The project explored the impact of climate change on urban areas as well as possible adaptation measures. It investigated how urban management options and planning policy can be adapted in response to climate change, producing a toolkit for climate-conscious urban planning (Gill 2006, p. 25). In Greater Manchester, the contribution of greenspace to climate change adaptation was evaluated. The outputs included the classification and mapping of Greater Manchester according to urban morphology types based on land cover and land-use (Pauleit *et al.* 2011, p. 278f). The project determined that 59 percent of the urbanised area of Greater Manchester was covered by vegetation or water and could thus be considered GI. GI was understood as a collective term for different forms of urban greenspaces and water bodies, whose cooling function was emphasised. ASCCUE demonstrated that greenspaces in Greater Manchester should be increased to combat rising temperatures. The project informed the GI debate in NW England as research findings flowed into strategies, documents and guidance. Moreover, close links between research and practise were created through the involvement of local and national stakeholders, some of which were also involved in the GI Unit and Think Tank described in Section 4.2.2 (Gill 2006, p. 27).

The University of Manchester's Centre for Urban and Regional Ecology also addressed GI in the INTERREG IVC project GRaBS (*Green and Blue Space Adaptation for Urban Areas and Eco Towns*) from 2008 to 2011. This project brought together partners from various European countries, two of whom represented NW England (University of Manchester and the NWDA). GRaBS focused on the role of climate change in regional decision- and policy-making processes and demonstrated the role of GI in supporting urban climate change adaptation and reducing vulnerability to risks associated with rising temperatures and flooding. Within the context of the project, GI was understood to include "gardens, parks, productive landscapes, green corridors and green roofs and walls and blue infrastructure such as water bodies, rivers, streams, floodplains and sustainable drainage systems" (INTERREG IVC n.d.). GRaBS promoted GI as a crucial element of climate resilient development, arguing that its importance was insufficiently recognised, utilised and integrated into planning processes. The projects outputs included the 2010 NW CCAP (see Section 4.3.4) and a database of good green and blue space approaches to support adaptation measures (INTERREG IVC n.d.). In both the ASCCUE and the GRaBS project, GI was linked to climate change adaptation in urban areas. While GI was essentially used as a synonym to greenspace in the ASCCUE project, GRaBS widened the definition to encompass sustainable drainage systems.

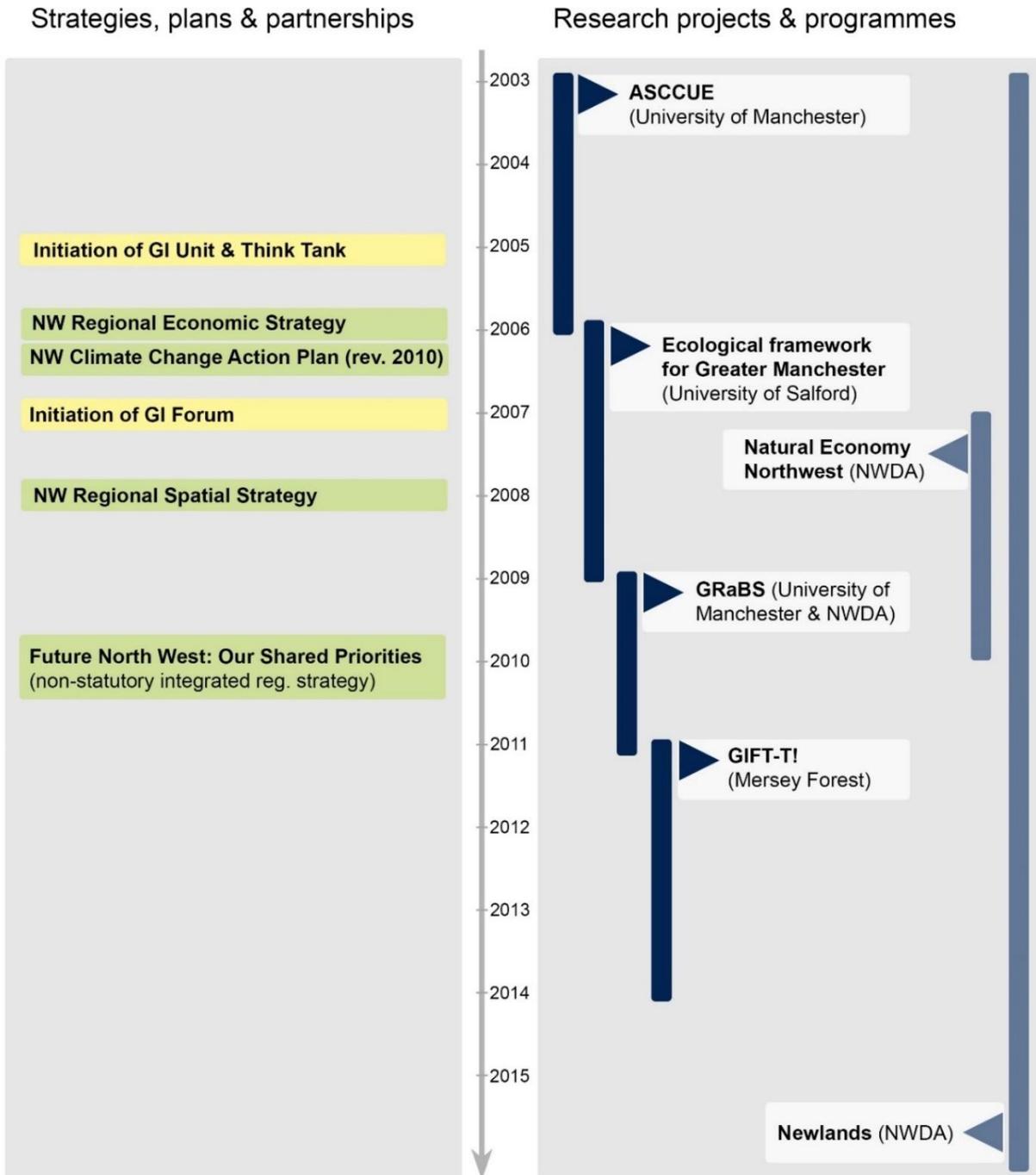
The University of Salford's School of Environment and Life Sciences has also advanced the GI concept in NW England. Extensive research has been conducted into 'socio-ecological systems', or the links between the bio-geo-physical environment and social actors, as well as on ecosystem management and valuation (REF2014 n.d., University of Salford n.d.). From 2006 to 2009, a project was carried out to create an ecological framework for Greater Manchester. The resulting 2008 Greater Manchester Ecological Framework is considered a forerunner of GI planning, contributing towards both the Greater Manchester GI Framework and the Manchester GI Strategy (REF2014 n.d., University of Salford n.d.). According to Pauleit *et al.* (2011, p. 280), the ecological framework was innovative because it moved beyond "the traditional patch-corridor-matrix approach to biodiversity conservation". In contrast to ecological networks which protect a network of valuable areas, the ecological framework guides nature conservation actions across the wider landscape to achieve habitat creation and restoration (Richardson *et al.* 2008, p. 6). This approach reflects principles of the GI concept: Greenspaces were investigated in their entirety, including different degrees of naturalness and protection status, as well as considering both public and private sites.

Different perspectives on GI were thus developed at the Universities of Manchester and Salford. As outlined in Chapter 2.1, this reflects a current controversy in the academic debate on GI: The projects at the University of Manchester placed GI in a tradition of urban planning, focusing on the socio-economic aspects of climate change adaptation and quality of life in cities. On the other hand, the University of Salford understood GI as a landscape-level approach to achieve habitat creation and restoration goals.

## 4.5 Discussion of preliminary results

Chapter 4 identified the actors which promoted GI in NW England, causing the concept to enter the regional policy agenda. It was outlined how these actors engaged with the GI concept by including it in their activities. Figure 4.3 provides an overview of the described strategies and plans, partnerships, research projects and programmes relating to GI in NW England. The resources and power of the most important actors were also described in order to assess the power balance between the actors.

As a result of a comprehensive literature review and web research, Community Forests were identified as the most important advocates of GI in NW England. In particular the Mersey Forest took on a prominent role as GI advisors, lobbying for the inclusion of the GI concept in regional planning documents. These lobbying activities fell on fertile ground because regional planning authorities were in the process



**Figure 4.3 Overview of GI activities in NW England**

Overview demonstrates regional GI groups (yellow), regional strategies and plans (green), research projects (dark blue) and programmes (light blue) referring to GI.

of creating the region's first RSS and RES, offering the opportunity to embed new ideas and concepts. GI thus became an element of a range of plans and programmes developed by the NWDA and the NWRA. However, the successful lobbying for GI by the Mersey Forest marked neither the beginning nor the end of cooperation between Community Forests and regional planning authorities in NW England. As indicated by the Newlands project, the NWDA has cooperated with Community Forests and other regional and national actors for environmental protection to reclaim derelict land.

A common thread runs through these activities: Although concerned with landscape regeneration, socio-economic concerns played a key role. In other words, the landscape was to be restored in order to become more attractive to its residents and to attract investment, thus inducing an economic upturn in the region. It can thus be concluded that environmental and economic regeneration have been closely linked in NW England even before the introduction of the GI concept. After GI was enshrined in the RES and the NENW programme was established for its delivery, the Mersey Forest guided the programme's GI strand. As GI's greatest advocate, the Mersey Forest pushed for the inclusion of GI in regional policy-making, thereby creating a new field of work for itself. As GI experts, Community Forests played an important role in the delivery of policy goals relating to GI.

The understanding of GI in political documents on the regional and sub-regional levels built upon the work of the North West GI Think Tank and Unit, both of which were initiated by the region's Community Forests. While Community Forests took on a prominent role in bringing stakeholders together around GI and lobbying for its inclusion on the political agenda, it is particularly noteworthy that the Mersey Forest deliberately adapted its language and key messages to appeal to different audiences (Gill *et al.* 2015, p. 139). Consequently, it is perhaps unsurprising that the perspectives on GI diverge somewhat between the NWDA and the NWRA. The manner in which GI was addressed by the NWDA focused on the economic value of GI and how it could be measured. The GI concept fit neatly into the NWDA's goal of promoting sustainable growth, as outlined in the RES. Environmental activities and economic gain were not presented to be mutually exclusive, but rather as two sides of the same coin. The NWDA promoted a view in which the environment provides the basis for economic development; investments in the physical environment have the potential to unlock additional economic prosperity. As a result, the regional GI debate became increasingly concerned with the economic benefits of GI interventions and methods to quantify and monetarise the returns on investments in GI.

While the NWDA embraced GI as a concept to advance the region's competitiveness, the NWRA's position of GI was less focused on economic aspects and placed greater emphasis on environmental and social considerations. The NWRA also demonstrated an awareness of potential conflicts between recreational use and biodiversity conservation not found in the NWDA's documents. The interlinkages between regional GI policy-making and private development is also noteworthy. Whereas the NWRA advocated strategic GI planning involving a range of stakeholders, the NWDA relied more heavily on persuading private actors to implement GI measures. To a certain extent, the NWDA's efforts have come to fruition as its work on GI was adopted by the mega-project Atlantic Gateway as basis for its environmental commitments. In comparison with the NWDA's comprehensive body of plans, reports and programmes concerning GI, the role of the NWRA has been more limited. Although the NWDA and NWRA have cooperated on the production of several plans, the NWDA's perspective on GI appears to dominate as economic concerns took centre stage while ideas about strategic GI delivery and its importance for biodiversity conservation were conspicuously absent in joint publications.

The different perspectives on GI of the NWDA and the NWRA can be explained both by their character and their target audiences. As the NWDA's primary function was to further regional economic development, it is unsurprising that economic benefits of GI were emphasised rather than ecological or social considerations. Moreover, the NWDA envisioned that GI improvements would primarily be achieved through the actions of private actors. Consequently, it sought to highlight the economic returns of GI interventions in a bid to persuade private developers and investors to take action. On the other hand, the NWRA's mission of representing regional interests was more diverse and it encouraged strategic GI planning through partnerships between public, private and community actors. This perspective allowed the NWRA to take a broader stance on GI, considering environmental and social as well economic concerns. The fact that the NWDA's perspective appears to dominate the regional discussion on GI can be explained by their resources and power as the NWDA's budget exceeded the NWRA's many times over (Deas 2006, p. 87). It is therefore unsurprising that the NWDA was able to commission a range of

activities on GI, while the NWRA's scope of action was limited to the production of the RSS. Consequently, the NWDA had far more power to shape the political agenda than the NWRA.

While Community Forests, the NWDA and NWRA were involved in regional GI policy-making and delivery, the GI concept was also addressed and refined in NW England's universities. As described in Chapter 4.4, the Universities of Manchester and Salford approached GI from two different perspectives. At the University of Manchester, research focused on climate change adaptation in urban areas and emphasised the potential of GI to reduce climate change risks such as the heat island effect. The ASCCUE and GRaBS projects focused on the socio-economic aspects of climate change rather than on habitats or species protection. In contrast, the University of Salford was more concerned with ecological connectivity and landscape-wide biodiversity conservation, placing GI in the tradition of biodiversity conservation and ecological networks. Yet, research at both institutions highlighted the multifunctionality of GI and its ability to provide various ecosystem services to urban areas.

These findings demonstrate that key regional actors promoted diverging interpretations of GI. In the sphere of regional policy-making and practise, the NWDA's power and resources allowed it to shape the GI discourse more so than the NWRA. Its significantly higher budget allowed the NWDA to commission reports from other actors (most notable the region's Community Forests). As a consequence, the GI debate in NW England became closely aligned with market logics, presenting GI as an economic opportunity space which can be quantified and monetised. In regional planning and policy-making, GI was thus hitched to a storyline which emphasised its contribution to economic growth and competitiveness rather than its ecological value. The interpretation of GI in academic spheres was less clear-cut: The contrasting perspectives of the Universities of Manchester and Salford reflect a current rift between academic disciplines in the UK and beyond (see Chapter 2.1). While the projects at the University of Manchester considered GI as a planning approach for urban climate change adaptation, the University of Salford placed GI in a tradition of ecological network planning. The associated goals and priorities differ distinctly, as urban-focused perspectives place greater importance on issues such as quality of life and climate change, while the landscape-focused perspective highlights issues such as species migration and biodiversity protection. The University of Manchester's perspective on GI as an urban planning tool for urban climate change adaptation appears to be more closely aligned with the dominant interpretation put forward by the NWDA. This is also indicated by their joint participation in the INTER-REG IVC project GRaBS. In the following chapter, the focus is shifted to the current GI discourse in NW England and the storylines of GI frameworks and strategies published between 2010 and 2015. Against this backdrop, it will become apparent which interpretation of GI has become dominant in the region.

## 5 Discourses

### 5.1 Introduction

The previous chapter described how various actors engaged with the GI concept, causing the concept to gain popularity in NW England. Having established the actors and power relations underlying the emergence of GI in policy and academic debates in NW England, this chapter shifts the focus to the dimension of discourses. As outlined in Chapter 3.2, the first aim is to shed light on the current dominant discourse on GI in NW England by describing the main storyline of local and city-regional GI frameworks and strategies. The second aim is to determine how the GI discourse fits into a larger context by highlighting similarities to other powerful discourses. The GI documents' storylines are outlined in Chapter 5.2. Consequently, overarching discourses will be characterised: Chapter 5.3 describes the political ideologies which were promoted during the 2000s and 2010s and Chapter 5.4 outlines discourses about the role of the environment and sustainability in policy and planning, before assessing similarities to the GI discourse. The findings of this dimension will be discussed in Chapter 5.5.

### 5.2 GI Frameworks and Strategies

Before delving into the content of GI strategies and frameworks, Table 5.1 provides an overview of the analysed documents as well as of the actors who commissioned and prepared them. It demonstrates that the analysed GI frameworks and strategies have been produced by a range of actors. Although public authorities were usually responsible for commissioning the documents, they were generally produced by other actors, such as the Mersey Forest or private consultancies. Moreover, a broad variety of funding streams were used for the production of the documents, including Area Based Grants which support local enterprises, national funds for nature protection (through Natural England) and EU funding streams (through INTERREG projects).

**Table 5.1 Overview of analysed GI frameworks and strategies**

| Scale       | Strategy / Framework  | Commissioned by  | Prepared by             | Funding   |
|-------------|---|--|-------------------------|---|
| City region | Greater Manchester Green Infrastructure Framework (2011)        | Planning and Housing Commission of AGMA                                      | AGMA                    | AGMA, Natural England   |
| Local       | Manchester Green and Blue Infrastructure Strategy (draft, 2015) | Manchester City Council  | BDP, Eftec, Countryside | Manchester City Council   |
| City region | Liverpool and Warrington Green Infrastructure Framework (2014)  | Environment and Waste Board of the City Region Cabinet                       | The Mersey Forest       | The Mersey Forest Partnership, Natural England, GIFT-T! (EU INTERREG project) |
| Local       | Liverpool City Green Infrastructure Strategy (2010)             | Liverpool City Council Planning Business Unit & Liverpool Primary Care Trust | The Mersey Forest       | Area Based Grant  |

In the following sections, the results of the qualitative content analysis of the GI frameworks and strategies will be presented. For each city or city region, the main storyline was also documented with tabular overviews. These overviews and the key text fragments on which they are based are listed in Appendices A and B.

As established in Section 3.2.3, these documents are used as a proxy for the dominant policy discourse on GI in NW England. The aim is to explore the understandings of GI and the main storylines of the documents not only to gain insights into the individual documents but also to highlight similarities and differences between the study areas. To this end, an overview of the definitions of GI which are employed in the GI frameworks and strategies is provided in the following section. Consequently, ontological claims about the status quo in the city or city region and existing challenges and opportunities will be explored in Section 5.2.2. Normative claims relating to visions, goals or ideals will be outlined in Section 5.2.3, while Section 5.2.4 describes strategic messages about actions which need to be taken to achieve such goals.

### 5.2.1 Definitions of GI

Before considering how action on GI is justified and specific goals are set, the underlying understanding of the GI concept must be considered. Table 5.2 provides an overview of the definitions of GI which are employed in the evaluated documents.

**Table 5.2 Definitions of GI employed in the analysed GI Strategies and Frameworks**

| Study area            | Definition of GI   |
|-----------------------|--|
| Greater Manchester    | <p>“Green Infrastructure is a network of natural environmental components and green spaces that intersperse and connect our urban centres, our suburbs and our rural fringe. In simple terms it is our outdoor natural environment. In Greater Manchester, green infrastructure consists of:</p> <ul style="list-style-type: none"> <li>▪ open spaces (parks, woodlands, informal open spaces, nature reserves, lakes, historic sites and natural elements of built conservation areas, civic spaces and plazas, and accessible countryside)</li> <li>▪ linkages (river corridors and canals, pathways, cycle routes and greenways)</li> <li>▪ networks of “urban green” (the collective resource of private gardens, pocket parks, street trees, verges and green roofs)” (AGMA 2011, p. 3).</li> </ul>   |
| Manchester City       | <p>“Green infrastructure is the network of multi-functional green and blue space, urban and rural, which is capable of delivering a wide range of environmental and quality of life benefits for local communities” (MCC 2015, p. 16).</p> <ul style="list-style-type: none"> <li>▪ "Open Spaces - parks, woodlands, informal open spaces (including amenity grass areas, allotments), nature reserves, lakes and reservoirs, historic sites and natural elements of built conservation areas,</li> <li>▪ civic spaces and accessible countryside, outdoor sports facilities (with natural surfaces)</li> <li>▪ Linkages - river valleys and canals, pathways, cycle routes, tram routes and railway lines – both used and disused</li> <li>▪ Networks of “urban green” – the collective resource of private gardens, pocket parks, street trees, verges, green roofs and green walls" (MCC 2015, p. 16).</li> </ul> |
| Liverpool City Region | <p>"Our life support system – the network of natural environmental components and green and blue spaces that lies within and around our towns and city, providing multiple social, economic and environmental benefits" (The Mersey Forest 2014a, p. 17).</p>  |

|                |   |
|----------------|---|
|                | <ul style="list-style-type: none"> <li>▪ “A system, the parts are interrelated and need to be planned and managed at appropriate scale and together.</li> <li>▪ Including both the vegetation and water elements of the natural environment.</li> <li>▪ Both urban and rural</li> <li>▪ Providing multiple benefits” (The Mersey Forest 2014a, p. 17).</li> </ul> |
| Liverpool City | “The city’s life support system – the network of natural environmental components and green and blue spaces that lies within and around Liverpool and provides multiple social, economic and environmental benefits” (The Mersey Forest 2010b, p. 7).   |

Table 5.2 demonstrates that the definitions used in Manchester City correspond closely to those in Greater Manchester, while those in Liverpool City resemble Liverpool City Region’s definition. Moreover, the GI definitions incorporate elements of earlier policy documents: In Manchester, the definition reflects the language of the National Planning Policy Framework (DCLG 2012, p. 52). The definitions in Liverpool and Liverpool City Region are close to identical to the definition put forward in the NW GI Guide (NWGIT 2008, p. 3). A number of common elements appear in all definitions and are condensed below:

- GI as a network: GI is understood as a network or system of interrelated and linked components.
- Green and blue infrastructure: GI includes both vegetation and water elements (e.g. lakes).
- Urban and rural GI: GI can be in urban centres, suburbs and rural areas.
- Multifunctionality: With the exception of Greater Manchester, all definitions refer to the multiple social, economic and environmental benefits of GI.

It can therefore be concluded that a common understanding of the GI concept and its main elements exists in the cities and city regions. The rather homogenous definitions suggest that the GI discourse has reached a state of relative stability in the region. After this brief overview of the GI definitions at the root of the analysed frameworks and strategies, the following sections outline their main storyline.

### 5.2.2 Ontological layer: Setting the scene

As described in Section 3.2.3, political discourses provide answers to particular issues which are actively constructed by actors as problems or opportunities for action. The way the current situation, challenges and opportunities are presented is thus entangled with the actions which are promoted in the strategies. In the following, the documents’ descriptions of the status quo will be summarised.

In Greater Manchester’s GI Framework, the city region is described as “a major centre for employment, culture, retail and leisure”, expecting further growth in the coming years (AGMA 2011, p. 24). A key challenge for the city region is the effect of the economic crisis, although the framework paints a carefully optimistic picture as the city region may be spared the worst of its effects due to its reliance on private sector growth. Nevertheless, areas more reliant on the public sector or with a greater proportion of declining sectors (e.g. manufacturing) may take longer to recover. It is also noted that Greater Manchester has a relatively low economic output and struggles with low levels of economic activity, high rates of unemployment and concentrations of deprivation. Against this backdrop, the city region seeks to boost business productivity and ensure that all parts of the city region and people contribute to and benefit from economic growth. Other challenges relate to the city region’s industrial past and unsustainable growth in the 19th and 20th century, which led to a decline in environmental and social quality still felt today. High quality open spaces and linkages, such as urban river ecosystems, have been lost or fragmented and visual quality has declined. This environmental degradation has left the city region more vulnerable to heat pollution and flooding. However, many formerly degraded areas are now the focus of

growth and redevelopment. In terms of challenges, the GI framework mentions the scarcity of public sector funding (AGMA 2011, 2012).

On the local level, Manchester's GI Strategy highlights the city's status as an internationally recognised centre for finance, commerce, retail, culture and leisure. According to the strategy, Manchester is the fastest growing city in the UK and strives to combine economic growth with quality of place. The city's success is linked to its reputation as a liveable city, which allows Manchester to retain and attract people with the right skills to support the economic base. GI is described as a factor which contributes to the city's success by raising its attractiveness. Manchester has recognised the importance of GI and invested in its natural assets over the last two decades, i.e. through investment in river valleys as part of regeneration plans, park improvements, biodiversity and tree strategies, creation of greenspace in development projects and private activities. Manchester's GI Strategy does not offer many insights into challenges or problems facing the city. However, the strategy is placed in the context of an intense competition between cities across the globe for talent and investment. According to this line of reasoning, Manchester must take action to secure its position as an attractive location for investors, tourists and residents, who are increasingly able to settle in any location that suits their needs. Furthermore, it is described that local authority budgets have further declined over the course of the strategy's development, which makes new funding and delivery models necessary (BDP. *et al.* 2015, MCC 2015).

In contrast to the previous documents, the Liverpool City Region's GI Framework offers little information about the status quo and challenges facing the city region. Nevertheless, GI is described to cover about 80 percent of the city region's area and contributes significantly to the region's economy, being linked to 8,000 jobs as well as accounting for £ 350 million gross value added and a wider economic value of over £ 10 billion per year (The Mersey Forest 2014b, p. 2). Financial constraints are described as a challenge for the City Region (The Mersey Forest 2013a, 2014a, 2014b).

Finally, Liverpool's GI Strategy sets the scene as follows: Liverpool is a green city, with GI covering 62 percent of its area. Although Liverpool's GI is an £ 8 billion asset which can contribute to sustainable growth, it is often overlooked. The city's parks and open spaces are part of Liverpool's culture and contribute to its attractiveness to visitors and residents. Such natural assets should be used as a competitive advantage and for marketing. On the other hand, Liverpool is faced with several challenges: The city has large areas of deprivation and derelict or vacant land. Economic recession has led to losses in employment, investment and growth and Liverpool's employment rate is below regional and national averages. Other challenges include health deprivation and inequality which are linked to GI: low levels of GI occur in areas with a higher incidence of physical and mental health problems and poor air quality. GI is unequally distributed as the most affluent areas of the city have 18 percent more GI than the most deprived. Further challenges include climate change and habitat fragmentation. Climate change will affect the city in several ways, e.g. by increased drought or higher temperatures. Habitat fragmentation is considered a problem, as development may result in the loss of habitats, while the management of greenspaces in the city may restrict their suitability as habitats (The Mersey Forest 2010c, 2010a, 2010b).

A number of preliminary conclusions can be drawn from the way the scene for action is set in the documents. Firstly, it can be noted that economic concerns take centre stage in these descriptions. Manchester and Greater Manchester focus on their position as recognised centres for economic activity. In Liverpool, the tourism sector is a key consideration. In both Manchester and Liverpool, a rhetoric is employed that highlights the global competition between cities for talent and investment. In this context, GI is described as an asset to secure and improve the city's position amongst attractive, liveable locations. In the case of Liverpool and Liverpool City Region, the value of these GI assets is frequently expressed in monetary terms. The described challenges are also predominantly of an economic nature: Offering the narrowest perspectives, Liverpool City Region refers only to financial constraints and Manchester remains focused on the global competition between cities. Taking a somewhat broader view, Greater Manchester refers to the legacy of environmental degradation stemming from its industrial past.

Fragmentation of ecosystems, decline of visual quality and increased climate change vulnerability are mentioned although the focus is generally on the socio-economic impact of environmental degradation. A major concern is the shrinking budget of local authorities and the reduced availability of public funding. All documents except for Liverpool's GI Strategy mention the need to find new forms of funding and delivery in light of these financial constraints. The rhetoric of Liverpool's GI Strategy differs significantly from the other documents: A wider range of challenges are described (including habitat fragmentation) and potential conflicts between development and habitat conservation are at least marginally recognised. Summing up, the state of GI is not generally considered a problem in and of itself. Instead, the need for action is primarily justified by the economic benefits which can be unlocked by investment in GI.

### 5.2.3 Normative layer: Vision and objectives

Having described how reality is constructed in the previous section, this section outlines the visions and objectives promoted in the GI frameworks and strategies. Each document sets out a broad vision for the future of the area as well as more specific objectives in relation to GI. The main messages are condensed in order to identify similarities and discrepancies between the documents.

Greater Manchester's GI Strategy states that the city region is committed to growth and that the framework must be understood against this backdrop. The city region's vision is to become a vibrant modern low carbon economy, noted for quality of life and place. The GI Framework seeks to contribute to the Greater Manchester Strategy which envisions that "[b]y 2020, the Manchester city region will have pioneered a new model for sustainable economic growth based around a more connected, talented and greener city region where the prosperity secured is enjoyed by the many and not the few (AGMA 2011, p. 5).

In relation to GI, six aims are described in Greater Manchester's GI Strategy:

- "To shape the natural environment of Greater Manchester to fulfil growth support functions and, in doing so, to enhance its ecosystems and establish it as a sustainable world city.
- To promote multi-functional use of land, except where restricted use is necessary to protect ecosystem services or irreplaceable qualities of the land.
- To promote partnerships across social, economic and environmental sectors in the use of land. These partnerships should be established at governance and delivery levels.
- To promote integration of GI into the strategies and work programmes of all organisations working in the growth, sustainability and well being sectors.
- To promote individual and community involvement in multi-functional land management.
- To promote and disseminate research into GI costs, levies, standards and benefits" (AGMA 2011, p. 20).

Manchester's GI Strategy includes a broad vision which states that:

*"[b]y 2025 high quality, well maintained green and blue spaces will be an integral part of all neighbourhoods. The city's communities will be living healthy, fulfilled lives, enjoying access to parks and greenspaces and safe green routes for walking, cycling and exercise throughout the city. Green and blue infrastructure will be supporting Manchester's growth. Businesses will be investing in areas with a high environmental quality and attractive surroundings, enjoying access to a healthy, talented workforce. New funding models will be in place, ensuring progress achieved by 2025 can be sustained and provide the platform for ongoing investment in the years to follow"* (MCC 2015, p. 11).

This vision is further specified, describing that the framework's implementation will ensure that river valleys are well managed, accessible and safe, providing an attractive recreational resource. Moreover, the strategy will contribute to the rejuvenation of the canal network and attractive, accessible parks and greenspaces. It is envisioned that networks of urban green will connect more residents with nature and provide corridors and stepping stones for biodiversity. Greenspaces will "work harder", providing multiple benefits to the city, supporting growth and contributing to "attractive, successful neighbourhoods" (MCC 2015, p. 5).

The strategy also sets out four objectives for GI planning in Manchester:

- "Improve the quality and function of [GI] to maximise the benefits it delivers,
- Use appropriate GI as a key component of new development to help create successful neighbourhoods and support the city's growth,
- Improve connectivity and accessibility to [GI] within the city and beyond,
- Improve and promote a wider understanding and awareness of the benefits that [GI] provides to residents, the economy and the local environment" (MCC 2015, p. 5).

Liverpool City Region's GI Framework sets out its vision in six thematic statements. Firstly, the city region strives to become "a low carbon economy", using strategic GI planning to support sustainable economic growth (The Mersey Forest 2013a, p. 9). Secondly, the natural environment will be recognised as a key health asset which contributes to wellbeing. Moreover, the city region will be well-adapted to climate change and greenspaces will be accessible by an extensive paths network and provide recreational opportunities for local communities and visitors. The ecological framework will provide critical functions and safeguard biodiversity. Finally, the rural economy will thrive, "providing valuable fuel and food resources as well as the setting for a high tech and knowledge based economy" (The Mersey Forest 2013a, p. 9). GI is to contribute to setting the scene for growth, supporting health and wellbeing, adapting to climate change, providing recreation, leisure and tourism, enhancing the ecological framework and developing the rural economy (The Mersey Forest 2013a, p. 9).

Liverpool's GI Strategy also describes its vision in six statements. Firstly, Liverpool's GI is planned "to support a safe, more inclusive, environmentally sustainable and enjoyable city, to provide essential life support functions for a world class city, that is adapted to climate change and where healthy living is a natural choice" (The Mersey Forest 2010c, p. 126). Secondly, GI planning will complement traditional 'grey' infrastructure planning, "creating high quality new housing environments and regeneration [...], maximising functionality to gain competitive advantage and support prosperity and [growth] within environmental limits" (The Mersey Forest 2010c, p. 153). Thirdly, Liverpool will be planned in a way that facilitates healthy options in everyday life (The Mersey Forest 2010c, p. 165). Fourthly, the city will be adapted to climate change; the GI network will provide "a vital urban cooling function, whilst also helping other species to adapt and move to new climate spaces" (The Mersey Forest 2010c, p. 182). Fifthly, GI will support "thriving wildlife populations and healthy habitats that provide essential and valued services for the city" (The Mersey Forest 2010c, p. 193). Finally, GI will be planned to provide "maximum benefits [...] to support sustainable development, taking opportunities to provide multiple functions". Decision makers will understand the value of GI and delivery organisations will cooperate in coordinated actions (The Mersey Forest 2010c, p. 199).

The strategic objectives for Liverpool's GI are divided into four categories, relating to sustainable growth, health, climate change and biodiversity. The objectives are listed in the table below.

**Table 5.3 Strategic objectives of Liverpool's GI Strategy**

(The Mersey Forest 2010b, p. 8).

|  |  |
|--|--|
| <b>A sustainable city</b>                          | <ul style="list-style-type: none"> <li>▪ Improving quality of place for projected housing growth and major regeneration programmes in order to attract investment, encouraging people to live and work in the city as well as increase the number of visitors to Liverpool.</li> <li>▪ Increasing levels of productivity across the city.</li> <li>▪ Developing a low carbon economy, including improving the opportunities for walking and cycling as part of everyday life in the city.</li> </ul>   |
| <b>A city providing natural choices for health</b> | <ul style="list-style-type: none"> <li>▪ Tackling health deprivation and health inequality across the city and in particular help tackle the issues of coronary heart disease, obesity, and diabetes to help to reduce numbers of premature deaths.</li> <li>▪ Increase levels of physical activity. Reduce the high levels of poor mental health across the city.</li> <li>▪ Reduce levels of air pollution.</li> </ul>   |
| <b>A cool city</b>                                 | <ul style="list-style-type: none"> <li>▪ Use of green infrastructure to manage urban heat island effect particularly as it affects vulnerable communities.</li> <li>▪ Managing water to provide irrigation for drought susceptible areas of green infrastructure to sustain their cooling function for the city.</li> <li>▪ Incorporating SUDS into new developments to manage surface water. Retrofitting green infrastructure to adapt to high temperatures in the city centre, providing shade and passive cooling.</li> <li>▪ The provision of corridors for species movement as climate changes.</li> </ul> |
| <b>A green and bio-diverse city</b>                | <ul style="list-style-type: none"> <li>▪ Protecting core biodiversity areas.</li> <li>▪ Creating expansion areas and wildlife corridors.</li> <li>▪ Ensuring that green infrastructure delivery programmes contribute to the delivery of biodiversity action plan habitat targets</li> </ul>   |

The visions and objectives outlined above offer insights into the role that is endorsed for GI. Key themes featuring heavily in the visions of the city regions and cities are growth and international reputation as world class locations with high quality of life and place. These elements are expressed in different ways: In Greater Manchester, the GI framework is explicitly linked to the area's commitment to growth, arguing that "[a] strategy for growth [...] requires a positive plan for green infrastructure" (AGMA 2011, p. 5). In Liverpool, it is clearly stated that "there has to be a focus on economic recovery and sustainable growth, green infrastructure is an £8bn asset for the city that has not been fully exploited" (The Mersey Forest 2010c, p. 156). The commitment to growth is often taken as a given, setting the general framework in which GI is to operate. In the case of Manchester and Liverpool, the objectives also highlight the importance of embedding GI in new housing and development schemes. While the documents frequently describe 'sustainable economic growth' as a goal, the underlying understanding of sustainability is not elaborated. Remarkably, Liverpool's GI Strategy describes its goal of becoming a 'sustainable city' solely in terms of housing growth and regeneration, economic investment and productivity (see Table 5.3). The flexible meaning of sustainability in political debates and UK planning will be explored in Chapter 5.4.

The visions promoted in Greater Manchester and Manchester include several other elements, such as providing recreational opportunities or ecological connectivity. However, by highlighting the multifunctional nature of GI, these issues are also rhetorically linked to the provision of growth support functions. For instance, Greater Manchester's GI Framework states that by enhancing ecosystems and the natural environment, growth support functions will be secured and the image as a world city advanced. In Manchester, the provision of corridors and stepping stones for biodiversity is argued to simultaneously provide links which residents can use to access nature, supporting healthy lifestyles and recreation. Such

statements imply that shaping the natural environment in a way that bolsters growth goes hand in hand with ecological improvements.

Although the visions in Liverpool City Region and Liverpool also highlight the importance of securing sustainable economic growth and becoming a world class city, these documents have a somewhat wider focus. It is particularly noteworthy that Liverpool and Liverpool City Region focus on the role of GI for climate change adaptation, while this issue does not feature in the visions and objectives of the other documents. Furthermore, the visions outlined for Liverpool and Liverpool City Region afford more weight to biodiversity and habitat protection, linking the need for increased ecological connectivity to the changing climate. In contrast to Manchester and Greater Manchester, a greater concern for nonhuman species is demonstrated as biodiversity is considered as an independent element of the visions and objectives, rather than merely underpinning growth functions. In contrast, health and wellbeing are emphasised to a greater extent than in Manchester and Greater Manchester. Some of the documents' visions and objectives also refer to their practical implementation: In Greater Manchester and Liverpool the need to establish partnerships to deliver actions is stressed. In Manchester, the need for new funding mechanisms is explored. While this section focused on the broad visions and goals which are set in the documents, the following section explores the allocation of responsibilities for the documents' delivery and practical implementation.

## **5.2.4 Strategic layer: From status quo to vision**

After outlining the described status quo as well as visions and objectives, the focus is now turned to statements concerning the realisation of the documents' goals. References to their strategic implementation will be examined from three perspectives: First, the potential of GI to contribute to the vision and objectives is described. This includes assertions about the specific characteristics of GI which allow it to improve local conditions (Section 5.2.4.1). Section 5.2.4.2 explores which spatial or thematic priorities are set out in the documents. Finally, the division of responsibilities for the delivery of the GI strategies and frameworks is analysed in Section 5.2.4.3.

### **5.2.4.1 Contribution of GI to the vision**

In this section, the relationship between GI and the vision will be explored. In other words, the reasoning employed to argue that GI can help overcome local challenges and achieve the specified goals is scrutinised for each city or city region.

Greater Manchester's GI Framework lists several reasons why GI contributes to the city region's vision:

- "It is an imperative of national and city-regional policy regarding sustainable development;
- It brings economic and health benefits;
- It contributes to climate change mitigation and adaptation;
- It can offset the negative environmental and social effects of development and reverse the legacy of poor environmental quality left from the 19th and 20th centuries;
- It meets the City's twin aspirations of quality of life and quality of place; and,
- It is consistent with the City-Region's intended "brand" as an ambitious, green and vibrant place" (AGMA 2011, p. 6).

The authors describe that "planning for GI helps [...] public authorities meet their obligations in respect of sustainability" (AGMA 2011, p. 5). Although there is no statutory duty to develop GI frameworks, they are in line with policies targeted at sustainable development (see Section 5.4.2). GI has the potential to make or break the success of growth initiatives, "without [GI], growth will be short-lived, may be of poor design quality, and will not be socially or environmentally sustainable" (AGMA 2011, p. 6). Moreover, it

is argued that a GI approach can “make the city more attractive, more vibrant, more prosperous and less vulnerable to negative effects of growth and climate change” (AGMA 2011, p. 6). These citations highlight the connection which is rhetorically established between GI and economic growth: GI is argued to underpin growth; it creates an attractive environment for additional investment and economic success. Any negative impacts of growth can be minimised by the inclusion of GI, allowing growth to be sustained in the long term.

While Manchester’s GI Strategy doesn’t list how GI contributes to the city’s goals, statements about the value and potential of GI are scattered throughout the document. The strategy evokes a scene of harsh global competition between cities for investment and skilled workers. Against this backdrop, GI is described as an important asset to create an attractive setting for development and regeneration (MCC 2015, p. 20). The quality of the city’s environment and easy access to parks and greenspaces is part of what makes the city attractive. GI contributes to “a lifestyle that is uniquely Manchester, and places [Manchester] among the top flight of world cities” (MCC 2015, p. 10). It is argued that GI is just as important as other types of infrastructure and essential to creating successful, liveable cities. Cities across the world have benefited from including GI “as part of their plans for growth and development [...], integrating high quality, well-maintained GI as part of wider plans for residential growth, improving health and wellbeing, attracting businesses and increasing tourism” (MCC 2015, p. 12). First and foremost, GI is thus described as an increasingly important asset to encourage economic development and regeneration in times of fierce global competition between cities. While it is also argued that GI provides recreational opportunities and health benefits, these issues are subordinate to promoting Manchester’s reputation as an attractive world city. It is argued that “all Manchester’s communities and sectors of the economy will benefit from ongoing investment in GI” (MCC 2015, p. 11).

Liverpool City Region’s GI Framework describes that GI can contribute to the city region’s vision and objectives in several ways. The first argument for GI is its contribution to growth and investment. It is taken as a given that appealing places “attract skills and capital - and [GI] plays a critical role in setting the scene for this growth and investment” (The Mersey Forest 2014b, p. 3). GI thus raises a place’s attractiveness and appeals to visitors, potential residents and investors. Moreover, GI can improve physical and mental health, reduce health inequalities and increase quality of life. This argument is linked to economic gains, as it may “save the UK economy around £500 million every year in reduced NHS [National Health Service] costs” (The Mersey Forest 2014b, p. 3). High quality GI is argued to provide recreation and leisure opportunities for residents and visitors, boosting visitor numbers and length of stay. The framework also describes the importance of GI for the rural economy, climate change adaptation and biodiversity conservation. The functions and benefits of GI are interpreted as being intrinsically linked; For instance, it is argued that GI measures will increase biodiversity by creating “larger, more connected, better-managed habitats and wildlife corridors” (The Mersey Forest 2014b, p. 4). In turn, increased biodiversity boosts the area’s resilience “in the face of a wide range of climate, economic, demographic and ecological challenges” (The Mersey Forest 2014b, p. 4). GI is described as “an effective and ‘no regrets’ action to help towns and cities adapt to projected climate change” (The Mersey Forest 2014b, p. 4). Climate change adaptation measures in the form of GI interventions are simultaneously framed as economic opportunities to “generate new jobs and improve rural business productivity” (The Mersey Forest 2014b, p. 3).

Liverpool’s GI Strategy describes that GI interventions will help tackle some of Liverpool’s most pressing concerns, which relate to housing growth and regeneration, health, climate change and biodiversity. The strategy’s technical document includes a literature review which demonstrates GI’s suitability to help overcome all of these problems. GI interventions offer an opportunity to support Liverpool’s targets for housing growth and regeneration, e.g. by improving quality of space, attracting investment and people, increasing growth, productivity and visitor numbers. GI is described as an important element of place making, creating attractive, high quality locations in order to boost economic growth and attract investment and “[t]alented, creative people in the knowledge economy” (The Mersey Forest 2010c, p. 74).

The presence of greenspaces is linked to quality of life as well as land and property values. GI is also argued to stimulate tourism, while improved access to greenspaces encourages healthy leisure and recreation (The Mersey Forest 2010c, p. 74). GI can also improve air quality, ameliorate mental health, reduce health inequalities and strengthen social cohesion (The Mersey Forest 2010c, p. 75). In relation to climate change adaptation, GI may reduce the urban heat island effect and decrease temperatures through evaporative cooling and shading, reduce flooding risks and make the landscape more permeable for other species (The Mersey Forest 2010c, p. 62f). Although explored in less detail, GI is also described to provide habitats and corridors for wildlife, arguing that a “thriving green infrastructure is likely to have a range of sustainably managed habitats that support a wide range of species” (The Mersey Forest 2010c, p. 65). Although biodiversity is described as “a measure of the health of a city’s green infrastructure resource”, it is not the main focus or goal of the strategy (The Mersey Forest 2010c, p. 65). Rather than detailing the relationship between GI and biodiversity, Liverpool’s GI Strategy refers to other existing policies (most importantly Liverpool’s Ecological Framework).

Table 5.4 provides an overview of the GI functions which are addressed in the analysed GI frameworks and strategies. It visualises that a relatively small number of functions or benefits are addressed and that these correspond to the main elements of the documents’ visions.

**Table 5.4 Functions of GI as outlined in GI frameworks and strategies**

|  | Greater Manchester | Manchester | Liverpool City Region | Liverpool |
|--|--------------------|------------|-----------------------|-----------|
| <b>Sustainable economic growth</b>                       | √                  | √          | √                     | √         |
| <b>Quality of life / quality of place</b>                | √                  | √          | √                     | √         |
| <b>“Brand” / soft locational factor</b>                  | √                  | √          |                       |           |
| <b>Health benefits &amp; recreation</b>                  | √                  | √          | √                     | √         |
| <b>Tourism</b>   |                    | √          | √                     | √         |
| <b>Climate change mitigation / adaptation</b>            | √                  | √          | √                     | √         |
| <b>Ecological networks / connectivity / biodiversity</b> |                    |            | √                     | √         |
| <b>Environmental restoration</b>                         | √                  |            |                       |           |
| <b>Rural economy</b>                                     |                    |            | √                     |           |

All documents focus on the potential of GI to support sustainable economic growth. This is linked to the argument that GI improves quality of place and quality of life, thus raising the attractiveness of the city or city region. In Greater Manchester and Manchester, the importance of GI for creating a specific reputation or ‘brand’ is emphasised. All documents also acknowledge the health benefits of GI, although the degree of specification differs amongst the documents: While health benefits are a little explored theme in Manchester, it is a key concern in Liverpool’s GI Strategy which expands on issues such as health inequality, air quality, mental health and the role of social cohesion. All documents also recognise that GI may contribute to climate change adaptation, while its potential to support mitigation is explored to a lesser degree. The documents from the Liverpool City Region and Liverpool recognise that GI may support ecological connectivity and biodiversity conservation, while Greater Manchester focuses on the role of GI for the environmental restoration of degraded landscapes. These differences are linked to the distinct visions set out in the areas. As the visions in Greater Manchester and Manchester are explicit

in their focus on economic growth and international standing, issues like biodiversity and ecological connectivity are not considered ultimate aims but rather prerequisites for economic success. As Liverpool and Liverpool City Region set out broader visions in which environmental concerns carry more weight in and of themselves, it is unsurprising that this is reflected in the representation of GI's functions.

#### 5.2.4.2 Priority areas and issues

The previous section has demonstrated that GI is rhetorically framed as solution for a range of concerns. Sweeping descriptions of GI's multifunctionality make it difficult to identify the true focus of the strategies. While much of the rhetoric is focused on highlighting that GI performs multiple functions and provides a range of benefits, potential conflicts are generally not discussed. However, a single GI element will generally not provide all described functions simultaneously and policy or management decisions may strengthen certain functions as the cost of others. Therefore, it is to be expected that trade-offs will need to be made on the ground.

The previous section has shown that economic growth is generally at the top of the list of benefits or functions of GI, while much less attention is devoted to issues like climate change and biodiversity. This section seeks to further carve out the relative importance of the topics described in the GI documents. All of the analysed policy documents describe spatial and thematic priorities, which may offer additional insights into the policies' underlying aims. Table 5.5 provides an overview of the priorities set out in each of the cities or city regions.

**Table 5.5 Priority areas and issues as described in GI Frameworks and Strategies**

| Area                  | Spatial and/or thematic priorities  |
|-----------------------|---|
| Greater Manchester    | <ul style="list-style-type: none"> <li>▪ Strategic green infrastructure network</li> <li>▪ Economic centres and growth points</li> <li>▪ Regeneration priority areas</li> <li>▪ Destination parks, landmarks and trails</li> <li>▪ An active travel network</li> <li>▪ Greening the urban environment</li> <li>▪ Community activism</li> </ul>  |
| Manchester            | <ul style="list-style-type: none"> <li>▪ Existing GI</li> <li>▪ New development</li> <li>▪ Connectivity and Accessibility</li> <li>▪ Understanding and Awareness</li> </ul>   |
| Liverpool City Region | <ul style="list-style-type: none"> <li>▪ Overcome "pinch points"</li> <li>▪ Use GI to "sell" the area and bid for Green Capital</li> <li>▪ Health &amp; wellbeing</li> <li>▪ Climate change adaptation</li> <li>▪ Strengthen GI tourism assets</li> <li>▪ Encourage active travel, recreation and leisure</li> <li>▪ Cleaning the Mersey River</li> <li>▪ Strengthen the ecological network and woodlands</li> <li>▪ Integration of GI Framework into other plans and strategies</li> <li>▪ European Structural and rural Development Funds</li> <li>▪ Engaging the non-environmental sector</li> </ul> |

|                  |  |
|------------------|--|
| <p>Liverpool</p> | <ul style="list-style-type: none"> <li>▪ City Centre and Inner Areas, areas for housing growth and regeneration, major development projects</li> <li>▪ Key gateways and routes to the city</li> <li>▪ Areas lacking good quality open spaces</li> <li>▪ Areas where links to public realm can encourage walking and cycling</li> <li>▪ Areas with high incidence of poor health and low levels of accessible GI</li> <li>▪ Areas with communities vulnerable to climate change or potential lack in irrigation</li> <li>▪ Areas with tree cover below targets or areas along watercourses</li> <li>▪ Ecological connectivity</li> <li>▪ Vacant or derelict land</li> </ul> |
|------------------|--|

Greater Manchester's GI Framework sets out seven priorities, six of which describe spatial foci for GI interventions (see Table 5.5). The first priority is to safeguard and develop the existing GI network in a way that maximises its benefits to the city region. Further spatial priorities are economic centres and growth points, such as city and town centres, housing growth points, major investment sites and key transport corridors and gateways. These areas are considered particularly important because "the quality of public realm is vital to economic success and image" (AGMA 2011, p. 20). The focus is on areas with high public visibility, showcasing the city region as an attractive location for business and investment. The framework also highlights the importance of regeneration priority areas, which includes "housing market renewal areas, areas of multiple deprivation, major brownfield regeneration sites, DUN [Derelict, Underused and Neglected] land, blighted transport corridors, often characterised by pollution and low environmental quality" (AGMA 2011, p. 20). The underlying reasoning is that GI can help revitalise brownfield, preparing it for new development and building investor confidence. Important visitor destinations such as major parks, landmarks and trails are also prioritised, because they are "valuable in creating a sense of place, civic pride, stimulating healthy lifestyles and sustaining jobs in the tourism, leisure and recreation industries" (AGMA 2011, p. 20). Networks for active travel between the GI assets and to residential and employment areas should be developed to encourage sustainable transport and healthier lifestyles. Greening the urban environment is highlighted as a key issue, which should include small-scale GI interventions, such as integrating vegetation in new development, tree planting or supporting community food growing projects. The last priority concerns the practical implementation of GI projects: the GI Framework aims to support community activism, "[s]ustaining the existing groups engaged in neighbourhood management, providing them with resources, access to information, networking and best-practice" (AGMA 2011, p. 21). The division of responsibilities relating to the framework's implementation will be further explored in the following section.

Manchester's GI Strategy highlights four priorities, respectively relating to existing GI, new development, connectivity and accessibility, and understanding and awareness. Firstly, it should be ensured that existing GI assets deliver benefits to the local community and businesses. Their function and use should be designated and clear ownership and maintenance arrangements must be in place. Amongst others, the spatial foci associated with this priority are river valleys, existing parks and greenspace, school grounds, trees and woodlands, Sites of Biological Importance and Local Nature Reserves. The second priority concerns the incorporation of well-designed and maintained GI within new development, such as major city centre projects or residential developments. GI should also be retrofitted to existing buildings, while temporary GI should be encouraged on sites awaiting development. It is argued that both permanent (e.g. major parks, river valleys) and temporary areas of GI (e.g. on sites awaiting development) are important elements of "a shifting mosaic of GI" which is commonplace in dynamic cities (MCC 2015, p. 16). Furthermore, connectivity and accessibility should be encouraged to provide permeable, safe and attractive green routes between existing GI assets. Finally, understanding and awareness of

GI should be promoted through wider communication, education and awareness raising to develop new funding and delivery mechanisms (MCC 2015).

The GI Framework for Liverpool City Region includes a number of key activities, although they are not generally linked to specific locations or ranked. It is argued that GI should be planned in such a way that it helps overcome so called “pinch points” which undermine the area’s investment potential (The Mersey Forest 2014d, p. 10). Moreover, it is recommended that GI be used to promote the city region as an attractive location to live, work and invest. GI interventions should also support the city region’s bid for the European Green Capital Award. GI tourism assets such as large parks or coastal areas should be further developed, while strengthening an active travel network for walking and cycling. Further priorities include using GI to reduce health inequalities, promote mental and physical health and wellbeing as well as to support climate change adaptation and the creation of a low carbon economy. Measures to make the Mersey River “the cleanest and most ecologically rich river in Europe” should be supported (The Mersey Forest 2014d, p. 10). Another focus is the enhancement of the city region’s ecological framework by expanding and connecting nature areas and increasing woodland cover in areas of greatest need. Finally, several key activities refer to the practical implementation of the framework: It should be integrated into other plans and strategies and influence the content and delivery of EU structural and rural development funds. Moreover, partnership arrangements for the delivery of the framework should involve the non-environmental sector (The Mersey Forest 2014d, p. 10).

As for Liverpool’s GI Strategy, clear spatial priority areas are set out: GI interventions should be focused at the City Centre and Inner Areas, in particular at areas with housing growth or regeneration and major development projects (e.g. Super Port, Liverpool Knowledge Quarter). GI should also be used to ensure that the key gateways and routes to the city are attractive. Moreover, GI interventions should target areas lacking good quality open spaces, areas where walking and cycling can be encouraged by GI improvements, areas with high incidence of poor health and low levels of accessible GI and areas with communities vulnerable to climate change. Finally, GI can benefit areas potentially lacking irrigation, areas with low tree cover or areas along watercourses. GI should be planned in a way that encourages air flow and improves ecological connectivity. Temporary use should be made of vacant or derelict land (The Mersey Forest 2010a, 2010c).

Summing up, it has become apparent that the many of stated priorities are motivated by socio-economic rather than ecologic considerations. Spatial priorities are often those areas with the greatest public visibility. Actions in central locations, major development sites and along key gateways are prioritised because they can effectively improve the area’s image, thus contributing to economic success. Areas which are currently in need of regeneration are also afforded special attention, as GI may contribute to their success by preparing it for investment. For instance, Liverpool City Region’s GI Framework stresses the need to address ‘pinch points’ to unlock economic growth in problematic areas. The document explicitly states the importance of GI interventions for branding purposes, improving the region’s image and working toward the European Green Capital Award. Other areas are prioritised because they boost tourism and recreation. This is justified both by economic gains resulting from increasing visitor numbers and health benefits linked to the encouragement of active travel modes. Social considerations relating to health and climate change vulnerability receive more attention in Liverpool and Liverpool City region than in the other areas. Although ecological considerations are also reflected in the priorities, they are presented in less detail than socio-economic concerns. In Liverpool and Liverpool City Region, ecological connectivity receives more weight amongst the described priorities than in Manchester and Greater Manchester. In Greater Manchester, biodiversity is merely listed as one of a range of functions secured by safeguarding the strategic GI network. While increasing connectivity is a priority in Manchester, this is interpreted as securing access to greenspaces for recreation rather than increasing permeability for other species. The previous sections demonstrated that GI is portrayed as an opportunity to achieve win-win solutions to economic, ecologic and social challenges. However, the documents’ priorities indicate that GI interventions which are able to contribute to the area’s public image and economic

success may overshadow less visible activities. Branding or image improvement is a key consideration in all analysed documents. While this section focused on the thematic and spatial priorities of the analysed documents, the following section highlights how responsibility for their delivery is allocated.

### 5.2.4.3 Responsibilities

In this section the division of responsibility for the delivery of the documents will be examined. This is crucial in order to understand how the strategies and frameworks will be translated into action on the ground as well as the roles which specific actors should play. The following paragraphs describe the delivery mechanisms which are set out in the analysed GI frameworks and strategies.

Greater Manchester's GI Framework includes an Action Plan setting out how the framework will be implemented on the ground. It is specified that the Action Plan will be delivered through the combined efforts of:

- "The planning system, to ensure development provides new and enhances existing green infrastructure where it is needed;
- Strategic environmental initiatives such as the Red Rose and Pennine Edge Forests;
- Greenspace and countryside management by local authorities' open space teams;
- Environmental activity by providers and managers of other civic infrastructure such as roads, rivers, canals, flood defences, educational and health facilities;
- Actions by community groups and corporate bodies and personal actions by individuals;
- Community and neighbourhood planning" (AGMA 2011, p. 32).

In a similar vein, the implementation of Manchester's GI Strategy is described as a shared responsibility, involving "a wide range of public, private, academic and community stakeholders, including the Council, developers, larger, sometimes land holding bodies, as well as local community groups, 'friends of' groups, community groups, individuals, and others" (MCC 2015, p. 42). The Council and planning system should provide a framework to safeguard, enhance and create GI through development. Both City Council and developers need to consider GI in their plans and pre-application discussions on development proposals to incorporate GI into development schemes. Moreover, environmentally-focused organisations need to contribute to the delivery (e.g. Red Rose Forest, Groundwork, Environment Agency) and 'Friends of' groups should support the management and upkeep of local parks. Other relevant stakeholders include housing providers, major land and estate holders, investment and development funds. The involvement of a broad range of partners is argued to be particularly important due to constrained public sector funding which necessitates new mechanisms and sources of funding. Innovative partnerships will be needed for the ongoing management and maintenance of GI as well as to develop external funding bids for the delivery of GI projects (MCC 2015, pp. 42–44).

Liverpool City Region's GI Framework differs from the other documents in that it is linked to the City Region's Local Nature Partnership, *Nature Connected*. The delivery and monitoring of the framework's progress are part of the partnership's work plan. A member organisation of *Nature Connected* takes the lead on each of the framework's activities. This includes public, private and community sector actors (e.g. Environment Agency, local authorities, Wildlife Trusts, developers, landowners). The mechanisms through which the actions will be delivered vary widely (e.g. through local plans and sectoral strategies, Integrated Biodiversity Delivery Areas, specific planning conditions). Funding can also take many forms, including amongst others payments for ecosystem services, EU structural funds or a community infrastructure levy. It is proposed that *Nature Connected* and the city region's Local Enterprise Partnership provide strategic support for the framework (The Mersey Forest 2013a, p. 76).

The importance of collaborative approaches is also stressed in Liverpool. Liverpool's GI Strategy outlines that GI policy must be supported by Liverpool City Council and embedded in strategic documents,

such as the Local Development Framework. Support is also needed from the Local Strategic Partnership, which brings together public, private and community sectors, and Liverpool Vision, a city centre regeneration and economic development company. It is advocated that a Liverpool GI Forum be established and linked to the City Region Environment and Waste Board. GI projects can be undertaken by a variety of actors (e.g. Liverpool Vision, Mersey Forest, Hospital Trusts, Local Council). The health sector should include GI as a health service in health improvement programmes. Project proposers should prepare detailed GI plans for major developments, while the City Council should set out specific GI targets and design guidelines to steer such developments in the right direction. Local urban planners should incorporate cross boundary issues identified in the city region's GI Framework. Moreover, community involvement should be encouraged to reduce pressure on scarce public resources. In order to deliver GI interventions on the ground, GI must be embedded in existing plans, programs and projects (e.g. Local Transport Plan, public realm strategies). The established sources of funding for these plans, programs and projects could then be used to achieve GI goals (e.g. EU structural funds, community grants, health sector funding). Financial contributions from developers should be pooled in a fund for GI implementation (The Mersey Forest 2010c, pp. 200–205, 2010a, p. 44).

Summing up, all analysed GI frameworks and strategies stress that their implementation cannot be realised by public authorities alone. The need for partnership approaches involving public, private and community actors is mainly justified by the unstable financial climate and the continuous erosion of public funding. Against this background, partnership approaches and a variety of alternative funding mechanisms are described to deliver GI measures and offset public funding cuts. These include EU structural funds and lottery funds for open space development, which require partnership working to access financial resources (Burton and Mathers 2014, p. 77). The GI documents describe the need to engage both environmentally-focused organisations and the non-environmental sector in the delivery of GI. Environmental NGOs and community groups should contribute to the creation and management of GI assets. The involvement of local communities in GI projects is argued to strengthen community cohesion, while volunteering may also alleviate pressure on public budgets, e.g. by reducing management costs for greenspaces. The analysed documents also place demands on private developers, which should contribute to GI funding and delivery. Public authorities may choose to set certain planning obligations for the delivery of GI before accepting development proposals. Mechanisms such as community infrastructure levies or planning obligations can compel developers to indirectly fund GI improvements. Moreover, developers may choose to support environmental projects to improve their public relations.

Partnership approaches are consistently advocated throughout the GI documents. The reasoning employed to justify the involvement of a range of actors is twofold: The most apparent explanation is that local authorities are unable to implement all needed actions independently due to their limited budget. The funding mechanisms associated with GI planning will be further explored under the dimension of rules in Chapter 6.4. A second, less straightforward explanation is that partnership approaches may be linked to a larger ideology. Since 1997, Labour and Conservative-Liberal Democrat Coalition governments have promoted increased collaboration and civil engagement as part of their political ideology. Shifting political ideologies and their relation to GI planning will be analysed in the following chapter.

### 5.3 Overarching political ideologies: From Third Way to Big Society

Having described the storylines of the GI documents in Chapter 5.2, this chapter contextualises the GI discourse in NW England by describing the dominant political ideologies which were promoted in the UK throughout the 2000s and 2010s. As described in the previous chapters, the GI concept emerged in NW England around 2005, while the analysed GI documents were published between 2010 and 2015. Consequently, this chapter will focus on the political ideologies which were promoted by the Labour and Conservative-Liberal Democrat Coalition administrations under Prime Ministers Blair, Brown and Cameron (see Table 5.6). To gain a clearer understanding of the political climate in which the GI discourse evolved, the ideologies of both administrations will be linked to their attitude towards planning and governance. Each administration had distinct ideas about the role and functions of planning as well as the scale on which it should take place. This section provides a rough outline of their ideals and how these are reflected in the evolving debate about GI. The ideological agendas have also been associated with a range of planning reforms which will be discussed under the dimension of rules, in Chapter 6.2.

**Table 5.6 British governments from 1997 to 2015**

| Date of election | Governing party                         | Head of Government |
|------------------|---|--------------------|
| 1997             | Labour                                  | Tony Blair         |
| 2007             |   | Gordon Brown       |
| 2010             | Conservative–Liberal Democrat Coalition | David Cameron      |
| 2015             | Conservative                            |                    |

In the run-up to the 1997 general election, the Labour party restyled itself as ‘New Labour’ under Tony Blair. A key element of its manifesto was a philosophy of government known as the Third Way, which combines elements of the New Right (‘pure neoliberalism’) and the Old Left (‘social democracy’) (Clifford and Tewdwr-Jones 2013, p. 49). While interpreted differently around the world, “[i]n the UK it can be understood as an attempt to retain the economic gains of Thatcherism, while invoking a set of moral and civic values through which Labour sought to reshape civil society. A new emphasis on issues of citizenship, democratic renewal and social inclusion appeared alongside a continued emphasis on economy and efficiency” (Newman 2001, p. 2). According to Clifford and Tewdwr-Jones (2013, p. 51), the key themes under New Labour were managerialism, partnership, performance and participation. A central goal was to reform the public sector to support growth more efficiently (Clifford and Tewdwr-Jones 2013, p. 50f).

In relation to planning, the Labour administrations sought to promote more strategic long-term planning under the heading of spatial planning, as well as to increase efficiency and reduce bureaucracy. Allmendinger (2011, p. 50) describes spatial planning as an attempt to facilitate “sectoral coordination of multiple issues around places at different scales”. However, the Third Way and reforms under New Labour have been harshly criticised as some claim they masked neoliberal restructuring (Clifford and Tewdwr-Jones 2013, p. 50). Tewdwr-Jones (2012, p. 21) indicates that attempts to strengthen spatial planning under New Labour were overshadowed by “a second agenda [...] that sought politically to extend the neo-liberal approach of deregulating planning further and prioritizing economic interests.” It has also been argued that the Third Way attempts to reconcile inherently incompatible elements without acknowledging tensions. In relation to spatial planning the Labour administration claimed to be committed both to “increased public involvement and speed of decision-making, a ‘step-change’ in housing delivery and the protection of green belts, sustainable development and economic competitiveness” (Allmendinger 2011, p. 1f). This demonstrates the Labour administration’s “obsession with positive mes-

sages and inclusive discourses” (Allmendinger 2011, p. xi). Critics have condemned New Labour’s shallow embrace of popular themes and storylines as well as their “heavy reliance on image or soundbite politics, the role of ‘spin doctors’ and opinion polls in policy formulation” (Allmendinger and Tewdwr-Jones 2000, p. 1385). New Labour embraced broad planning concepts such as ‘smart growth’, ‘sustainable development’ and ‘urban renaissance’, which has been interpreted as a “deliberate attempt to create an environment of acquiescence” (Allmendinger 2011, p. 53). Vague and flexible concepts could appeal to a broad variety of actor groups, being open to individual interpretation. Despite their all-encompassing rhetoric and focus on win-win solutions, the impact of such concepts depends on the relative weight attributed to its individual aspects.

New Labour’s Third Way approach has been interpreted as the hallmark of post-politics, as it sought to disassociate itself from ideological notions such as class struggle, instead aiming for pragmatic compromises (Žižek 2005, p. vii). Post-political strategies project a world without conflict, in which consensus between all actors can be established and the political is displaced or foreclosed (Allmendinger and Haughton 2014, p. 30). New Labour embraced a range of post-political strategies: the reliance on grand discourses and broad, universal themes, together with the use of partnership-led decision-making and other consensus-building measures has served a hidden neoliberal growth agenda, while excluding those proposing opposing interpretations (Allmendinger 2011, p. 41). New Labour’s policies built upon “fuzzy ‘feel-good’ concepts or empty signifiers that disarm effective opposition by their ability to seem uncontroversial and commonsensical” (Allmendinger and Haughton 2014, p. 36). The encouragement of partnerships and public consultation presumed that all involved actors could reach a consensus and work toward common goals, while possibilities for fundamental disagreement were simultaneously foreclosed (Allmendinger and Haughton 2014, p. 30). This allowed diverse goals such as growth and conservation to be portrayed as reconcilable and unproblematic, delaying conflicts to a later point in time when hard decisions inevitably needed to be made.

The credit crunch, financial crisis and recession from 2008 exposed the weaknesses of the Third Way as actors were less keen to commit to broad concepts and consensus was less likely to be reached in times of austerity. Against this backdrop, the Big Society approach was promoted by the Conservative party in the run-up to the 2010 elections to create a more caring and socially aware image. As the guiding principle of governance under the Conservative-Liberal Democrat Coalition, the Big Society asserted that New Labour had relied too heavily on the state, making civil society overly dependent and apathetic. The Big Society was promoted as a way to help civil society help itself by strengthening local communities, neighbourhood groups and charities. The Coalition maintained that local and voluntary groups should receive more responsibilities, while the role of the central state should be minimised. State bureaucracy and regulation was portrayed as an unnecessary burden which could be overcome by encouraging the private and voluntary sector to provide more local services (Allmendinger and Haughton 2014, p. 32). The ideology of the Big Society is thus tied up with the allocation of responsibility: Individuals and communities are argued to be naturally entrepreneurial and amply equipped to shape their own future; It is only through the meddling and over-regulation of the state that they have lost their self-reliance (Norman 2010, p. 201). The Big Society seeks to right this wrong by removing bureaucratic burdens and encouraging service delivery through volunteerism and new partnership models. The Big Society is an anti-statist ideology which seeks to redefine the relationship between the individual, the state and public and private institutions. This relationship was construed as zero-sum, meaning that more civil involvement should equate less intervention by the state (Lowndes and Pratchett 2012, p. 32).

The Big Society was envisaged as a mechanism to redistribute more planning responsibilities to the local and neighbourhood level. Under its ‘localism’ agenda, the Coalition reshaped the planning system, shifting decision-making to lower levels. While these planning reforms will be explored in Chapter 6.2, it should be noted that the Coalition’s ideology of localism has served not only to redefine the relationship between different planning tiers but also between public, private and civil actors. The shift of power to

the local level has also been selective, as it “has not meant making the private sector more local, for example by breaking up large banks into smaller units and countering oligopoly” (Webb 2015, p. 465). Consequently, it has been argued that the Coalition’s agenda is not so much about returning power to local communities as “it is about working with the grain of markets rather than trying to manage them” (Webb 2015, p. 465).

Although the Coalition sought to set itself clearly apart from New Labour’s policies, there is a remarkable degree of continuity between the administrations. Like New Labour, the Coalition employed post-political strategies by depicting certain issues as beyond the control of government or ‘common sense’ to foreclose wider political debate (Flinders and Wood 2015, p. 28). In an era of austerity, a minimal state and the transfer of duties to civic and private actors was presented to be purely pragmatic rather than an ideological political programme (Allmendinger and Haughton 2014, p. 40). Similar to New Labour’s planning reforms, the Coalition’s localism has been described as a neoliberal strategy favouring private interests (Lowndes and Pratchett 2012, p. 29). According to Allmendinger and Haughton (2014, p. 41), the Coalition’s “electoral message [was] that we are all in this together, even as it [served] to emphasise that the state’s primary role is to promote wealth creation and economic growth”. Consequently, both New Labour and the Coalition have been criticised for further aligning the planning system with economic interests.

The empowerment of local communities has been a popular theme under New Labour and the Coalition, although their approaches were somewhat different in intent and practise. Allmendinger and Haughton (2014, p. 36) argue that very little leeway was actually afforded to local authorities under New Labour as local partnerships were encouraged, but only “so long as they agree to do the bidding of their central government funders and to be judged by agreed output measures”. Under the Coalition government, there was a greater devolution of control and responsibility to local areas. However, local decision-making power was primarily seen as a way to reduce resistance to growth and development: Allowing communities more say in the type of local development was argued to quell more general opposition to new development (Cowell 2013, Allmendinger and Haughton 2014, p. 47). Both New Labour and the Coalition also sought to redefine the relationship between public, private and civil actors. New Labour attempted to modernise government by involving communities and third sector institutions in the delivery of local services, recognising the neighbourhood as a focal point for cross-sectoral policy interventions. The Coalition government sought to transfer responsibilities from the public sector to civic and private actors, relying on charities and private-public partnerships (Durose and Lowndes 2010, p. 342).

There are several parallels between the political ideologies promoted by New Labour and the Coalition and the GI discourse in the NW England. As described in Chapter 5.2, the GI strategies and frameworks generally describe GI as an opportunity to achieve win-win solutions to economic, environmental and social challenges. In all documents, GI is characterised by its capacity to provide multiple functions and benefits, emphasising multifunctionality as its key strength. Such sweeping descriptions of the broad range of functions and benefits make it difficult to discern what GI means conceptually and how trade-offs might be made between competing aims in practise. With the exception of Liverpool’s GI Strategy, none of the documents acknowledged that tensions may exist between individual functions or that gains in one category of benefits may be traded off against losses in another. The documents generally describe GI planning to be associated purely with win-win outcomes. In these scenarios, there are no losers. This becomes apparent in Manchester’s GI Strategy, which proclaims that “all Manchester’s communities and sectors of the economy will benefit from ongoing investment in GI” (MCC 2015, p. 11). Apart from excluding non-human species, this description does not address that some population demographics may benefit more so than others from GI interventions. As employed in the analysed documents, GI thus promises the simultaneous achievement of socio-economic and environmental goals, while tensions or trade-offs are largely disregarded. The concept is ‘fuzzy’ as its broad scope obscures its focus and implications. As such, GI fits well with New Labour’s embrace of all-encompassing and seemingly uncontroversial planning concepts. Like other fuzzy themes, the concept’s openness to both

socio-economic and environmental interpretations allows it to resonate with a wide range of actors. However, as a fuzzy concept, GI may serve to mask the prioritisation of economic considerations: Despite their emphasis on win-win outcomes, the analysed GI documents indicate that GI interventions which are able to contribute to the area's public image and economic success may overshadow less visible activities. This is a particular concern as related themes of the New Labour era (e.g. sustainable development, urban renaissance) have been harshly criticised for surreptitiously serving a neoliberal agenda which favoured economic growth (see Chapter 5.4.2).

Moreover, the analysed GI documents reflect debates about the relationship of public, private and civil actors. All GI frameworks and strategies described partnerships between different public sectors, private developers, land owners and community members as the only way to achieve the plans' aims. New Labour's goal of breaking down the insulation of government departments and promoting partnership approaches fits well with the principle of collaborative planning embedded in the GI concept. The reliance on actors beyond the public sector to deliver GI is also in line with the Coalition's ideology of the Big Society and the minimal state. Private actors, NGOs and community groups are expected to take on a high degree of responsibility for the implementation and upkeep of GI actions. Their increased involvement is advocated against the backdrop of local authorities' reduced budgets and capacities to deliver the needed actions single-handedly.

This section explored links between broad political ideologies and the GI discourse. It was demonstrated that the GI concept is symptomatic of its era, fitting into a line of broad, fuzzy concepts which gained popularity during the New Labour administration. Moreover, the implementation of the analysed GI documents relies upon partnership approaches and the involvement of private and community actors, reflecting New Labour's embrace of partnerships as well as the Coalition's political ideology of the minimal state. In the following Chapter, the focus will be placed on the understanding of the environment and sustainability in UK planning discourses.

## **5.4 Understandings of the environment and sustainability in UK planning discourses**

In the previous chapter, dominant political ideologies of the 2000s and 2010s were explored in order to contextualise the GI discourse in NW England. In this chapter, we turn to the understandings of the environment and sustainability in UK planning. Section 5.4.1 provides an overview of the roles allocated to the environment in English planning discourses since the late nineteenth century. The manner in which the environment is generally framed in UK planning discourses will be explored before examining which of these perspectives are reflected in the GI discourse. Building on this general synopsis, the debate around sustainability and sustainable development in relation to UK planning policy and practices will be explored in greater detail in Section 5.4.2. This can offer insights into the GI discourse as the analysed documents frequently stated their commitment to 'sustainable development' or 'sustainable growth' without elaborating on the underlying understanding of sustainability.

### **5.4.1 Understandings of the environment in planning discourses**

Davoudi (2015a, p. 246ff) identifies eight popular storylines about the environment in UK planning discourses, which are summarised below. While these understandings of the environment gained popularity during different eras, there is no simple sequential evolution. No single storyline has replaced older ones; Instead, elements of these storylines are combined to form complex, multi-layered narratives in

contemporary planning documents. While there are clear conflicts between some understandings, others can be mobilised in complementary ways. Davoudi (2015a, p. 249) differentiates between the following understandings of the environment:

1. Environment as local amenity: From this perspective, the environment provides amenities for people due to its aesthetic and recreational value. This mind-set sparked two distinct planning movements in the early 20<sup>th</sup> century. The first sought to integrate environmental amenities into the urban fabric (as promoted by the garden city movement). The latter was concerned with the protection of the countryside from the encroachment of urban sprawl. In both perspectives the realm of the urban is strictly separated from the rural; a distinction which characterises the UK planning system to this day.
2. Environment as heritage landscape: From the mid-19<sup>th</sup> century certain landscapes and environmental artefacts were considered national heritage. This narrative was initially highly elitist, calling for the protection of landscapes for the nation, but from the public. This understanding of the environment is at the heart of the present-day designation of sites such as National Parks or Areas of Outstanding Natural Beauty.
3. Environment as a nature reserve: While the previous perspective sought to protect landscapes for the benefit of people, this perspective aims to protect nature for its own sake. The focus is on the conservation of biodiversity and habitats for non-human species rather than on human enjoyment and recreation. Ecological networks are a present-day example of this rationale.
4. Environment as a storehouse of resources: This utilitarian perspective views the environment as a container of material resources, scientific bases and functional services (including processing waste and pollution as a 'sink'). While industrial societies argued for the subjugation of nature and exploitation of environmental resources for economic growth, modern perspectives are subtler: A variation of this storyline is found in the discourse on ecosystem goods and services.
5. Environment as a tradable commodity: Since the 1980s, a market-led perspective on the environment as a commodity has thrived. From this perspective, the environment is seen as a tradable asset; losses in one particular location can be offset by gains in others. The economic value of environmental assets or 'natural capital' has become a key issue in planning documents since the 1990s, emphasising their role as drivers for economic regeneration or property values.
6. Environment as a problem: Since the 1960s, discourses about environmental problems have thrived, oscillating between calls for the revision of socio-economic structures and reassurances that these problems can be overcome without larger societal adjustments. In such storylines planning may be portrayed to solve environmental problems, e.g. through environmental impact assessments.
7. Environment as sustainability: Since the early 1990s, the UK planning system has embraced an understanding of sustainability which asserts that win-win solutions can be found for economic, social and environmental concerns. This interpretation of sustainability is a weak form of 'ecological modernisation' which seeks to limit environmental impacts of economic growth through technological improvements. As will be explored in Section 5.4.2, the emphasis has gradually moved away from balancing these three pillars towards pursuing sustainable economic growth.
8. Environment as a risk: Finally, as part of the discussion on climate change a new understanding of the environment as a potential threat to human wellbeing emerged. Storylines about climate change risks and natural hazards go hand in hand with debates about security issues. Davoudi (2014, p. 368) describes the associated rhetoric as follows: "Increasingly food security trumps biodiversity, energy security trumps renewable energy, and climate security trumps sustainability". In contrast to the win-win scenarios and consensus associated with sustainability, the storyline of the environment

as a risk paints a more pessimistic picture in which sacrifices need to be made in the name of security.

The GI discourse employs several of these storylines, primarily framing the environment as a storehouse of resources, a tradable commodity and as sustainability. The understanding of the environment as a storehouse of resources becomes apparent in the clear anthropocentric and utilitarian perspective employed in the analysed GI documents, emphasising the use of GI or the environment for local communities. A focus is placed on the multiple functions of GI and the socio-economic benefits which people draw from the environment, rather than on the inherent value of the environment. The lines of argument rely on hard economic factors to legitimise GI interventions, rather than on moral arguments or ecological considerations.

The GI documents also frame the environment as a tradable commodity. GI is frequently described as an asset which raises the profile of the city or city region. The environment is thus clearly linked to economic value, which is at times quantified and monetised. It is also associated with improvements to recreation, health and wellbeing, describing the importance of high quality aesthetic and recreational GI as local amenities. In the GI discourse, the environment is thus depicted as a commodity, because environmental improvements may boost economic growth and social well-being. It is also considered to be tradable: individual GI elements are not necessarily permanently retained, allowing the shape of the GI to transform over time. Trade-offs of various types may be made: Losses of GI in certain locations may be acceptable in order to achieve the overarching socio-economic goals of the city or city region. A quantitative decrease may also be justified if the quality of the remaining GI can be raised. Finally, the documents describe GI to contribute to all three pillars of sustainability due to its multifunctional character. The link between GI and national debates about sustainable development will be further explored in Section 5.4.2.

The prevailing understandings of the environment in the analysed GI documents can be argued to reflect a larger trend. While Davoudi (2015a) does not identify a chronological sequence of dominant storylines, other authors describe a recent shift in popular storylines which are mobilised about the environment. Flint and Raco (2012a, p. 246) argue that storylines have moved away from emphasising the intrinsic value of the environment to a stronger focus on quantitative economic outputs in the aftermath of the 2008 economic crisis. They describe that “[UK] policy discourses have adopted a utilitarian approach by presenting environmental assets as an economic ‘opportunity’ space, through which new forms of growth can be mobilised and delivered” (Flint and Raco 2012a, p. 246). As economic growth is defined as the key priority, “nature takes on a commodified form, as something that can be quantified, managed and regulated in terms of costs and benefits” (Flint and Raco 2012a, p. 247). In a similar vein, Apostolopoulou and Adams (2015) suggest that recent years have seen a closer alignment of nature conservation policies to market logics. The authors describe the restructuring of nature conservation policies in light of the 2008 economic crisis, arguing that the promotion of sustainable development has gone hand in hand with political goals of generating economic growth and deregulating planning. As exemplified by the concept of ecosystem services, the environment is increasingly framed as a service provider which can be monetarised and aligned with economic development. This reflects the rise of storylines about the environment as a storehouse of resource and a tradable commodity (Davoudi 2015a, p. 246ff).

It can thus be summarised that the GI documents employ an understanding of the environment which has gained popularity in recent years: the storylines frame the environment predominantly as a storehouse of resources or a tradable commodity, focusing on its socio-economic benefits rather than on the intrinsic value of nature. GI is also argued to contribute to sustainable development or sustainability, although the meaning of these concepts remains vague in the analysed documents. After outlining different understandings of the environment in UK planning and highlighting their selective incorporation into the GI documents, the following section explores the links between GI and sustainability.

### 5.4.2 Sustainable development and sustainability

The previous section described the concept of sustainability as one way in which environmental issues have entered UK planning debates and policies. In this section, dominant understandings of sustainability and sustainable development in UK planning and policy are further explored. The strategic employment of the sustainable development concept illustrates how the meaning of fuzzy concepts and popular buzzwords may change over time. The debate on sustainable development is particularly relevant in the context of this thesis for two reasons: firstly, the concepts of sustainable development and GI are both marked by relatively vague definitions, allowing them to be (re-)interpreted by powerful actors. Similar to debates about sustainable development, defining GI and the relative importance of environmental, economic and social goals has proven difficult. Secondly, GI is frequently argued to contribute to sustainable development and there is a large thematic overlap between the concepts, as both seek to attain environmental, economic and social goals simultaneously and advocate more integrated approaches. So far, the employment and evolution of the sustainable development concept has been subject to much more academic scrutiny than the GI concept. Against this backdrop, the changing understanding of sustainability and its uptake in UK policy will be traced. This will allow some inferences about the context in which GI policy documents should be seen and expose the way fuzzy concepts can be surreptitiously reinterpreted in political debates.

Since the 1990s, sustainable development has been endorsed by successive UK governments and become a fixture in political debates and policy documents. The political debate has been significantly shaped by the 1987 UN Brundtland report '*Our Common Future*', which considers sustainable development as a bridge between objectives of environmental protection, economic competitiveness and social justice (WCED 1987). In the UK, the concept of sustainable development has been linked to and operationalised through the concept of ecological modernisation (Whitehead 2007, p. 39, Davoudi 2015a, p. 259). Developed in the 1980s, this theory rejects the notion that economic development is inevitably at odds with environmental protection. Instead, it proposes that environmental care may provide economic benefits, while environmental degradation can be costly for nation states or companies:

*"[t]he essential idea is that a clean environment is actually good for business, for it connotes happy and healthy workers, profits for companies developing conservation technologies or selling green products, high quality material inputs in to production (e.g. clean air and water), and efficiency in materials usage. Pollution, on the other hand, indicates wasteful use of materials [...]. It is cheaper to tackle environmental problems before they get out of hand and require expensive remedial action"* (Dryzek and Schlosberg 2005, p. 301).

Ecological modernisation suggests a virtuous link between economic growth and environmental protection, allowing both to reinforce each other. Where an ecological modernisation approach is used to deliver the goals of sustainable development, policy responses generally seek to reduce waste and pollution and conserve energy and resources through increased efficiency and technological innovation, while market forces are influenced rather than regulated or replaced (Davoudi 2015a, p. 259). Whitehead (2007, p. 37) argues that ecological modernisation is a departure from earlier theories because it establishes a connection between sustainable business practises and direct benefits for individual businesses or entrepreneurs. While some authors commend its potential to increase the business community's contribution to sustainability, others fear that key principles of sustainability have been sacrificed in the attempt to bring businesses on board. In particular, critics argue that the concept fails to address the inherent features of modern capitalism which cause environmental degradation by relying primarily on technocratic solutions (e.g. O'Connor 1994, Hajer 1997). Moreover, it has been criticised for reducing notions of environmental value to economic profit (Whitehead 2007, p. 39).

According to Whitehead (2007, p. 48), “the principles of ecological modernization [...] have played a pivotal role in the recent historical emergence of sustainability within British politics” and “enabled sustainability to become an acceptable principle even in a country with a long legacy of neo-liberal social, economic and environmental policy.” Sustainable development has been part of the political agenda and interpreted through the lens of ecological modernisation since the 1997 Labour administration. This becomes apparent in political statements, such as Prime Minister Blair’s (2003) pronouncement that “tackling climate change or other environmental challenges need not limit greater economic opportunity”. In a similar vein, the Department for Trade and Investment’s (2000, p. 7, cited in Barry 2010, p. 112) Sustainable Development Strategy specifies that “[t]he environment is a business opportunity [...] there are economic benefits in reducing waste, avoiding pollution and using resources more efficiently”. These quotes demonstrate that New Labour was keen to link sustainability to issues like resource efficiency, technological innovation, cost reduction and increased competitiveness, highlighting its compatibility with business interests and economic growth (Barry and Paterson 2004; Barry 2010).

Under the Labour administration, sustainable development was enshrined as a guiding principle of planning, serving to secure “high and stable levels of economic growth, social progress which recognizes the needs of everyone, effective environmental protection and prudent use of natural resources” (Cowell 2013, p. 34). However, it remained unclear how environmental, economic and social dimensions should be balanced in decision-making. In order to reduce confusion amongst planners, an inquiry was made into national sustainability objectives, “[redressing] the dominance of environmental interpretations with a renewed economic emphasis” (Allmendinger 2011, p. 53). In terms of urban policy, sustainable development was embraced as a tool to bolster more socially and environmentally sensitive forms of urban development through more integrated, strategic approaches to regeneration, intersectoral coordination and partnership arrangements (Webb 2015, p. 464). The themes of sustainability and community were linked “to make up a still more positive whole, a policy hybrid in which the warm connotations of each worked to reinforce the values of the other” (Cochrane 2012, p. 50). One example of such policies is the 2003 Sustainable Communities Plan, which promised the delivery of

*“places where people want to live and work, now and in the future. [Sustainable Communities] meet the diverse needs of existing and future residents, are sensitive to their environment, and contribute to a high quality of life. They are safe and inclusive, well planned, built and run, and offer equality of opportunity and good services for all”* (DCLG 2010).

The emergence of the GI concept in the UK has been traced back to the Sustainable Communities Plan, as GI was advocated to balance new housing development with environmental sustainability (Gill *et al.* 2015, p. 125). Analysing the debate around Sustainable Communities, Cochrane (2012, p. 51) argues that “in practise the emphasis was placed on finding ways of ‘sustaining’ economic growth, and in this context that meant a focus on the achievement of housing targets.” This understanding of sustainability rhetorically included social and environmental dimensions, while the main focus was on providing affordable housing to enable wider economic growth. Environmental aspects were incorporated by placing “a new emphasis on making cities attractive to visitors and businesses, as well as the reclamation of derelict places for more productive uses” (Cochrane 2012, p. 54). Environmental improvements were argued to increase economic growth and the location’s competitiveness, while economic growth provided the means to tackle social and environmental challenges (Cochrane 2012, p. 55).

In later years, these themes were largely absorbed into a policy discourse around ‘Urban Renaissance’, which aimed to “construct new sustainable urban realms, founded upon the principles of social mixing, sustainability, connectivity, higher densities, walkability, and high-quality streetscapes with the express aim of attracting the suburban knowledge and service industrial demographic back to the city” (Rogers and Coaffee 2005, p. 323). New Labour’s Urban Renaissance agenda has been praised for including ambitious goals for the reuse of brownfield sites for new development and energy efficiency obligations on developers (Webb 2015, p. 458f). However, critics argue that it was skewed towards benefiting private-sector speculative development and served to retake the inner city for the middle class, while less

desirable user demographics (e.g. low-income residents, homeless people) were marginalised (Atkinson 2003, Raco 2003, Rogers and Coaffee 2005, Lees 2008). Although seeking to enhance quality of life, it turned a blind eye on “tensions [which] inevitably arise about whose quality of life it enhances, and at whose expense” (Rogers and Coaffee 2005, p. 321).

In the years leading up to the 2010 general election, the Conservative Party under David Cameron was very vocal about its environmental commitment and successfully appealed to the green movement. Shortly after the formation of the Conservative-Liberal Democrat coalition government, Cameron proclaimed that it would strive to be the “greenest government ever” (Randerson 2010). However, as Connelly (2014, p. 20) chronicles, “since 2010 the Coalition government has moved decisively away from its loudly proclaimed green commitments, through a phase of relative silence, to a reassertion of traditional values.” Like New Labour, the Coalition’s approach to environmental policies was in line with ecological modernisation, favouring market-based approaches and technological developments to tackle environmental problems. With regards to sustainable development, the importance of boosting economic growth was emphasised, arguing that this was a prerequisite to addressing social and environmental problems (Webb 2015, p. 465).

This becomes apparent in the way sustainable development was understood in the 2011 National Planning Policy Framework (NPPF): The NPPF includes a “presumption in favour of sustainable development”, compelling local planning authorities to take sustainable development into account in decision-making and plan-making processes (Lees and Shepherd 2015, p. 111). This became highly controversial due to ambiguous readings of the term ‘sustainable development’. Although the courts have been unwilling to provide a concise judicial definition, from a legal perspective sustainable development is not considered an independent criterion, but a shorthand for national policy as a whole. Development is thus considered sustainable where it is consistent with the NPPF. As the NPPF is distinctly pro-growth, developments with considerable environmental or social impacts may nonetheless be considered sustainable for the purposes of the NPPF if they generate economic growth (Lees and Shepherd 2015, p. 119). While sustainable development appears to have gained significance in planning, it has become synonymous with sustained economic growth. Flint and Raco (2012b, p. 247) criticise that “[s]ustainability, in this reading, represents an attempt by governments and elites to colonise new areas of policy under the umbrella of environmental protection, social justice and a ‘balanced’ approach to economic development that, in reality, enables businesses to expand remorselessly”. The Coalition embraced ecological modernisation as mode to deliver sustainability, arguing that win-win solutions can be found for environmental, social and economic issues. In practise, environmental concerns generally took a backseat where they clashed with the prevailing goal of generating economic growth (Connelly 2014).

It can be concluded that sustainable development has been a seemingly constant element of the political agenda during the New Labour and Coalition administrations, both of which embraced an ecological modernisation approach to operationalise the concept. The potential of environmental measures to complement orthodox economic growth goals was put into the spotlight, allowing a number of green objectives to be integrated in policies as long as they did not cause conflicts with these core goals. A second characteristic is the emphasis on voluntary commitments and partnership forms of environmental governance rather than legislative regulation and sanctions (Barry 2010, p. 125). The themes of sustainable development and ecological modernisation fit well with New Labour’s predilection for fuzzy concepts which could bring a variety of actors to the table, although conflicts frequently re-emerged in relation to their practical implementation. Despite rhetoric commitments, the Coalition administration has largely redefined sustainable development as consistency with its growth-first agenda. As a consequence, sustainable development as currently applied in UK policy and planning remains but a shell of the concept’s academic understandings. The fact that such a reinterpretation was possible highlights the vulnerability of fuzzy concepts to be modified and watered down by dominant actors promoting their own agenda (Whitehead 2012).

The ecological modernisation approach to sustainable development becomes apparent in New Labour's Sustainable Communities and Urban Renaissance agendas, which advocated environmental improvements in order to boost socio-economic outcomes. In a similar vein, the Coalition portrayed economic growth as a mechanism which would help tackle environmental and social challenges. The idea that economic growth and environmental protection can reinforce each other is also found in the analysed GI strategies and frameworks: investment in environmental protection is described to bolster economic growth, as GI may raise the attractiveness and competitiveness of a location by attracting new residents, visitors and investment. In some cases, the creation and maintenance of GI itself is also portrayed as a new market which provides business opportunities in the region. The GI documents emphasise that GI may generate economic, social and environmental benefits, while trade-offs or conflicts between these dimensions are omitted. The GI discourse in NW England thus reflects the logic of ecological modernisation, which has long been embraced by UK administrations in the context of sustainable development.

It is also noteworthy that GI was first promoted as a planning approach to support the delivery of the 2003 Sustainable Communities Plan by balancing new housing development and environmental sustainability. From its very inception, the GI was thus tied up with debates about housing growth and promoting attractive, economically successful locations which would thrive in the global competition. New Labour's Sustainable Communities and Urban Renaissance agendas mainly strived to retain and attract residents and enhance the economic success of urban areas. This resembles the rhetoric employed in the GI frameworks and strategies: The GI concept fits neatly into a larger discourse on increasing the attractiveness of cities and raising their economic competitiveness. Indeed, the analysed GI documents highlighted that GI increases the attractiveness of the area, attracting residents, businesses and visitors, increasing quality of life and encouraging healthy lifestyles. Moreover, new housing and development are not described to be at odds with GI, but rather as an opportunity to integrate new, high-quality GI into the urban fabric. Like the Sustainable Communities and Urban Renaissance themes, the GI discourse employs an inclusionary rhetoric, promising win-win outcomes which will benefit all communities. However, it was shown that the Urban Renaissance agenda led to unequal outcomes and focused mainly on promoting attractive locations in order to secure competitiveness in a globalised era. This demonstrates that fuzzy, seemingly uncontroversial concept may obscure that their outcomes generate clear winners and losers rather than benefiting everyone equally.

## 5.5 Discussion of preliminary results

In the Chapter 5, the recently published GI strategies and frameworks of Manchester, Greater Manchester, Liverpool and the Liverpool City Region were considered as proxies for the dominant GI discourse in the study region. The main storyline of these documents was carved out in order to gain a better understanding of their main themes. The descriptions of the status quo and local challenges were found to be focused on economic factors, emphasising the need to work toward stronger economic growth and international reputation as world class locations. Attracting businesses, new residents and visitors were key considerations. GI played into this equation because a high-quality environment was argued to raise quality of life and quality of place, increasing the general attractiveness and success of the location. In a similar vein, the visions focused primarily on supporting 'sustainable economic growth' and increasing the international standing of the location, although a range of other issues such as improving recreation opportunities, health, climate change adaptation and ecological connectivity were also mentioned. Environmental and social dimensions were often rhetorically linked to economic benefits. The documents' prioritised areas for GI interventions were often selected on the basis of their public visibility and impact on the location's image rather than based on ecological considerations. For instance, there was a focus on city centres, key access routes and major development projects. Finally, the allocation of responsibilities for the implementation of GI's actions highlighted the importance of partnership approaches which involve private and community actors and innovative funding mechanisms.

After examining the content and main themes of GI strategies and frameworks, the focus was shifted to their context. It was found that the GI discourse reflected elements of the political ideology of the Labour and Coalition administrations: The strong support for partnerships in GI documents is consistent with New Labour's focus on cooperation and public participation as well as the Coalition's insistence that in the Big Society, community groups and private actors must become more involved in the delivery of services (Allmendinger 2011, p. 1f). As demonstrated in Chapter 5.3, New Labour promoted a more strategic spatial planning approach, encouraging multi-scalar and cross-sectoral working as well as increased public involvement. The Coalition encouraged decision-making on the local and neighbourhood levels and stressed that citizens must actively contribute to the success of their communities, shifting the provision of public services increasingly to private and civil actors (Lowndes and Pratchett 2012, p. 32). These themes are reflected in the GI documents which describe partnerships between public, private and community actors to be indispensable for their delivery due to the dearth of public sector funding. For instance, Liverpool's GI Strategy states that City Council may take the lead for some actions, while others are assigned to private-public partnerships, trusts or charities. Large-scale private investment projects are described as a key opportunity to deliver GI. Similar statements can be found in the policy documents from Manchester and Greater Manchester. Private and civil actors are thus allocated a high degree of responsibility, while public authorities take on a more managerial role to guide the involvement of other actors.

While terms such as 'partnership' or 'collaboration' are spread throughout the documents, they are not clearly delineated. Their type and degree of formality varies, ranging from Local Enterprise Partnerships to more informal neighbourhood volunteer activities. The partnership arrangements proposed for the delivery of GI are often highly complex and interconnected. For instance, a lead partner in a GI action may be a Local Enterprise Partnership, which is itself an alliance between businesses and councils. The involvement of individuals in different groups may also blur the lines between actors. For instance, Manchester's GI Strategy was co-produced by the design company BDP., while BDP. officers are also involved in the city's Green and Blue Infrastructure Committee, an independent group of professional volunteers for local action on climate change (M:ACF n.d.). The complex entanglements between different actor groups and partial overlaps make the organisational structures of GI planning difficult to grasp, raising questions about their transparency and public accountability. It should also be noted that the actual implementation of these partnership approaches remains uncertain: while specific actors are sometimes named for proposed activities, this reflects no binding commitment (The Mersey Forest 2010a, p. 89). However, the composition of such partnerships is likely to impact the delivery of GI goals; It seems inevitable that private organisations or public-private partnerships providing and maintaining GI as part of large-scale urban redevelopment schemes will generate different outcomes than GI provided by environmental NGOs. It remains to be seen whether the partnerships will be able to integrate the skills and resources of its stakeholders in effective ways.

It was also found that the GI discourse reflects storylines about the environment which have gained popularity in UK planning debates in recent years: Such storylines emphasise the utility of the environment for local communities, highlighting their socio-economic rather than ecological value. The GI of a city or city region is described as the foundation of its success because it provides a range of functions or services, which contribute towards economic, social and environmental goals. The value of greening the city or city region is primarily attributed to its ability to boost economic growth and competitiveness. Ecological benefits such as the preservation of habitats and biodiversity tend to be treated as matters of secondary importance. According to such lines of argument, environmental improvements can be translated into quantifiable economic gains: High quality greenspaces raise the location's profile and attractiveness to investors, residents and visitors, which can be measured by rising real estate values. On the other hand, losses of GI may be traded off against economic gains: GI elements which are not considered a valuable resource may be abandoned and replaced with other, more profitable land uses. The purpose of a city's or city region's GI is not perpetually safeguard the entire network as open and

green space; Temporary GI may be established on sites awaiting development and a decrease in the quantity of GI may be traded off against an increase in quality. Treating GI as a tradable commodity means that the shape of the GI network is likely to be in constant flux.

Throughout the analysed GI documents, GI is also linked to sustainable development and argued to contribute to the ecological, social and economic pillars of sustainability. While the documents do not make their interpretation of sustainable development explicit, their understanding is clearly in line with the environmental modernisation approach to sustainability which has been embraced by the New Labour and Coalition administrations. This approach has emphasised that environmental and economic interests need not be contradictory, but that win-win outcomes are possible. This interpretation of sustainability has been embraced in a number of policies which show remarkable resemblances to the GI discourse. In relation to urban policy, New Labour promoted sustainable development through the themes of Sustainable Communities and Urban Renaissance, which incorporated environmental commitments such as brownfield development targets and energy efficiency, framing them as assets to raise the location's attractiveness and economic competitiveness. The GI documents employ a similar language: GI is described to contribute to attractive, economically successful locations, which is considered paramount in an era of global competition. Moreover, where the need to create and maintain GI is recognised, a new market of the green economy is established, facilitating new forms of growth. The documents emphasise that the protection of greenspaces is commonsensical because it serves socio-economic as well as environmental goals, while potential conflicts between these goals are glossed over. It is particularly remarkable that little attention is devoted to potential tensions between new development and safeguarding GI; Instead, new development is portrayed as an opportunity to establish new, high-quality GI. The GI concept as applied in NW England does not seek to challenge business as usual politics and economy or current forms of neoliberal governance; instead, it highlights opportunities to provide GI where it complements socio-economic goals and generates no political conflict. This reliance of mainstream economic values rather than ideological or ethical reasoning is characteristic of the ecological modernisation approach. A second characteristic is the GI documents' reliance on voluntary commitments and partnerships rather than legislative regulation and sanctions. The GI strategies and frameworks seek to persuade various stakeholders to take voluntary action rather than setting out strict rules.

Like sustainable development, GI is a fuzzy concept which can be interpreted differently by stakeholders with divergent political agendas. This may be considered a strength, providing a means to bring a range of stakeholders to the table to find common ground and potentially agree on environmental improvements. Nevertheless, in the case of sustainable development it has become apparent that conflicts frequently re-emerged when the concept was translated into practical decision-making. As demonstrated by New Labour's urban policies, the win-win rhetoric was often in contrast to unequal outcomes which privileged orthodox economic goals as well as specific social classes. Moreover, the Coalition administration redefined sustainable development as consistency with its growth-first agenda, focusing on job creation and economic growth. This demonstrates the vulnerability of fuzzy concepts to be modified as their political and economic context changes, allowing dominant actors to absorb them into their political agenda.

## 6 Rules of the game

### 6.1 Introduction

The final dimension of the policy arrangement describes the ‘rules of the game’, which include formal and informal regulations, legislation and procedures. These rules guide policy-formulation, decision-making and the implementation of policies (Lieverink 2006, p. 56, Arts and Buizer 2009). In this chapter, the impact of three kinds of rules will be explored. First, the rules of the UK planning system will be described in Chapter 6.2. After a brief introduction of its general characteristics, the waves of reform under New Labour and the Conservative-Liberal Democrat Coalition will be described to demonstrate how these rules have shaped GI policy-making. The formal rules of the planning system have allowed some actors to influence the debate, while their modification has altered the policy arena and its players. At the same time, informal rules relating to regional and urban governance can also be linked to GI planning in NW England. In Chapter 6.3, the focus is turned to the emergence of so-called ‘soft spaces’ of informal governance on the regional level and the rising popularity of green city branding as a strategy of entrepreneurial urban governance.

Both Chapters 6.2 and 6.3 seek to link the emergence of the GI concept and its evolution over the past decade to general formal and informal rules of UK planning. These chapters can be understood as a retrospective analysis which highlights links between the content and organisation of the GI concept in NW England and its wider context. In contrast, Chapter 6.4 focuses on the rules associated with GI planning itself. As described in Chapter 5.2, the analysed GI documents set out several funding and delivery mechanisms for GI planning. In a recent study, Mell (2016) has outlined the ongoing discussion about GI funding options in Liverpool. Building on this evaluation, Chapter 6.4 explores the implications of different modes of funding and implementing GI measures. The findings of this dimension will be discussed Chapter 6.5.

### 6.2 The UK planning system and its reforms

In order to place the GI concept in the larger legal framework of planning, the nature and dynamics of the UK planning system must be explored. The main objective of this chapter is to demonstrate how the characteristics of the planning system and its reforms have shaped the GI concept in NW England. To this end, Section 6.2.1 outlines the general characteristics of the UK planning system. After this overview, two waves of reforms will be explored: Section 6.2.2 describes planning reforms under the Labour administrations (1997-2010), while Section 6.2.3 outlines planning reforms under the Conservative-Liberal Democrat Coalition (2010-2015) (see Table 5.9 on p. # for an overview of UK governments since 1997). This time span is relevant as the first regional GI guidance documents and thematic networks emerged around 2005 in NW England.

#### 6.2.1 General characteristics of the UK planning system

Several authors have attempted to compile the main features of the UK planning system in relation to continental European or North American systems. UK planning is generally described to be subject to ongoing competition between different actors over its control, resulting in more incremental and fewer long-term strategic decisions as well as an unusual degree of flexibility and discretion (Nadin and Stead 2014, p. 189). Heurkens (2012, p. 231) identifies four distinctive and interrelated features of the UK planning system which will be explored in greater detail:

1. Discretion in planning decisions;
2. Development-led planning tradition;
3. Project-oriented planning approach;
4. Negotiation-oriented flexible planning processes.

The first feature of the UK planning system relates to the degree of discretion afforded to local planning authorities in decision-making. While national planning policies and local development plans must be taken into consideration, contradictory decisions are possible when they can be fully justified. This is linked to the absence of legally binding planning documents; While plans are produced under law, they are not part of the constitution. Plans are also not as spatially detailed as zoning plans, but rather employ performance criteria. Cullingworth and Nadin (2006, p. 1) describe that this “allows for flexibility in interpreting the public interest, which is in sharp contrast to other systems, like the European and US systems which explicitly aim at reducing such uncertainty, laying emphasis on protecting property rights.”

A second feature of the planning system is its development-led tradition, which stands in contrast to plan-led systems. Plan-led systems are based on the production of legally binding land use plans before discussions are initiated between public authorities, developers and landowners. The UK’s development-led system allows such negotiations to take place on the basis of indicative plans, while legally binding land use rules are prepared as a result of negotiations. The key decision point is thus later: in plan-led systems decisions are made when the land use plan is adopted, while decisions are made after presenting proposals to the respective authority in the UK. However, it should be noted that in recent years, aspects of plan-led systems have been introduced in the UK (Nadin and Stead 2014, p. 208).

Third, private sector-led urban development projects play an important role in the UK. All development proposals must be permitted by a planning authority and public and private actors generally engage in negotiations about individual planning projects. These negotiations allow local authorities to realise overarching goals by defining conditions in relation to a particular proposal. In theory, decisions about single projects are supposed to steer urban development as a comprehensive whole. In practise, complex visions are often difficult to realise through decisions on single projects (Heurkens 2012, p. 231ff).

The final feature relates to the importance of negotiation and flexibility in planning processes. As local authorities are not restricted by legally binding land zoning plans, they are able to take into consideration the circumstances and particularities of each project. As a result, decision-making allows for and necessitates negotiation and mediation. In planning negotiations between public authorities and applicants seeking an approval, both parties have some discretion. The decision-maker can define specific conditions before authorising developments. On the other hand, developers may have a say in how they meet the terms of planning policies. Such negotiations encourage private developers to accept additional development obligations to provide public benefits. Heurkens (2012, p. 233) argues that “[i]n a setting of diminishing governmental budgets this type of negotiated package deals can be a means to realise public objectives with private contributions.” For instance, developers may need to provide a certain amount of greenspace as a condition for planning permission.

It should also be noted that the UK, in contrast to Germany, has no statutory system of landscape planning (Churchward *et al.* 2013, p. 46). Plans or strategies for natural areas are traditionally only produced for landscapes under protective designation, such as Areas of Outstanding Natural Beauty or National Parks. However, sustainability is considered in land use and development: Since 2004, development plan documents are subject to sustainability appraisals which consider economic, social and environmental effects. However, critics argue this does not sufficiently safeguard environmental interests (Davoudi 2015b, p. 114f).

Over the past decades, a succession of administrations committed itself to reviewing and reforming the planning system. Remarkably, the criticism motivating these reforms has barely changed its tone since

the 1980s. According to Tewdwr-Jones (2012, p. 44), the planning system has continuously been accused of being too bureaucratic and slow, placing an unnecessary burden on business and growth. Moreover, it has been criticised for being overly focused on land-use matters, impeding the integration of a wider diversity of strategies, while poor stakeholder involvement has led to the alienation of the public. Sections 6.2.2 and 6.2.3 explore how the Labour and Coalition administrations have rearranged the planning system to correspond with their objectives. The key reforms of the 2000s and 2010s are summarised in Table 6.1 and will be detailed in the following sections.

**Table 6.1 UK planning reforms in the 2000s and 2010s**

(adapted from Tewdwr-Jones 2012, p. 20f)

| 2000s: Planning's Renaissance   | 2010s: Planning's fragmentation   |
|---|---|
| <ul style="list-style-type: none"> <li>▪ Ideological commitment to spatial planning approach</li> </ul>   | <ul style="list-style-type: none"> <li>▪ Ideological commitment to Localism, Big Society and collaborative planning</li> </ul>  |
| <ul style="list-style-type: none"> <li>▪ Regional planning tier strengthened in England</li> <li>▪ Introduction of Regional Development Agencies and Regional Assemblies</li> </ul>   | <ul style="list-style-type: none"> <li>▪ Abandonment of regional planning tier in England</li> <li>▪ Introduction of Local Enterprise Partnerships</li> </ul>   |
| <ul style="list-style-type: none"> <li>▪ Stronger local development planning introduced, featuring Local Strategic Partnerships</li> </ul>  | <ul style="list-style-type: none"> <li>▪ Introduction of neighbourhood planning and neighbourhood forums to determine local planning matters. Businesses allowed to prepare neighbourhood plans.</li> <li>▪ Reintroduction of Enterprise Zones</li> </ul> |
| <ul style="list-style-type: none"> <li>▪ Increasing role of sustainable development objectives, sustainability appraisals of plans and policies</li> <li>▪ Climate change agenda and commitments to brownfield development</li> </ul> | <ul style="list-style-type: none"> <li>▪ Sustainable development defined politically as job creation</li> <li>▪ Abandonment of brownfield development targets</li> </ul>  |

## 6.2.2 Planning under New Labour (1997 – 2010)

Under the Labour administrations, a key innovation to the planning system was the adoption of a spatial planning approach. The political ideologies underpinning this shift have been explored in Chapter 5.3. Essentially, it marked the government's attempt to promote more strategic intervention, while UK planning had traditionally taken a more reactive stance. Simultaneously, more joined up planning and stronger integration across different sectors was promoted. Nadin and Stead (2014, p. 202) describe that the 1997 Labour government was keen on "breaking down the insulation of government departments, improving coordination, strengthening local government, engaging communities in decision-making and focusing more on outcomes rather than outputs." Pendlebury (2015, p. 33) notes that the Labour governments of 1997 to 2010 took a more positive stance toward the public sector, planning and local government than the preceding Conservative governments. At the same time, Labour was eager to be publicly perceived as promoting growth and development, and undercurrents of neoliberalism endured (Pendlebury 2015, p. 33).

In the 2000s, New Labour attempted to break down 'silo government' and join up actors from different government sectors, the private sector and voluntary bodies. Partnership approaches were argued to promote efficient use of public resources and empower communities (Hart 2015, p. 75). To this end,

reforms to the neighbourhood, local and regional planning tiers were introduced. Local authorities received more competences in order to empower local communities and improve the coordination and delivery of services. ‘Local strategic partnerships’ were created to strengthen cooperation between government, civil society and business interests and develop individual community strategies which were taken into account in formal planning procedures (Nadin and Stead 2014, p. 202). Planning on the neighbourhood level was also encouraged to increase public participation and collaboration between different actors (Lowndes and Sullivan, 2008, p.57ff). However, it has been argued that in practise, decision-making power on the local and neighbourhood level was limited: The central state maintained a high degree of control, as targets of performance were set, managed and monitored (Flinders 2005, p. 87). This led Wright *et al.* (2006, p. 358) to conclude that “government decides how the community will be involved, why they will be involved, what they will do and how they will do it.” Finally, New Labour also introduced a regional planning tier in order to provide opportunities for “bottom-up involvement of local government and other ‘regional stakeholders’” (Pendlebury 2015, p. 34).

The regional planning tier was subject to continuous readjustments under the Labour administrations of the 2000s. From 2004, Regional Assemblies were legally required to produce Regional Spatial Strategies (RSS), which were heavily disputed in many regions. A major point of discontent was that they set out goals for new housing development in the constituent municipalities, a topic which caused frictions between housebuilders and environmental pressure groups (Tewdwr-Jones 2012, p. 142). Baker and Wong (2013, p. 92) argue regional planning frequently resulted in “lowest common denominator outcomes” or “bland ‘motherhood and apple pie’ statements” as it was attempted to define regional priorities without offending any of the constituent authorities. A further concern was the lack of authority of Regional Assemblies and their troubled relationship with Regional Development Agencies, which produced Regional Economic Strategies (RES). In theory, the RES was to conform to the RSS, while the RSS should reflect the RES’s analysis of the regional economy and support its objectives (Davoudi 2015b, p. 105). However, the power balance between the regional bodies eventually shifted to the benefit of Regional Development Agencies. In one of its last initiatives, New Labour abolished Regional Assemblies and replaced them with regional Leaders Boards (such as 4NW in NW England), which consisted of local council leaders (Baker and Wong 2013, p. 91, Davoudi 2015b, p. 105). In 2009, RSS and RES were replaced with Regional Strategies, which integrated spatial planning and economic development concerns in a single document. Regional Development Agencies took charge of their production, working together with the Leaders Boards. Several authors have criticised that Regional Development Agencies were predominantly led by the private sector, fearing excessive prioritisation of economic growth over social and environmental issues (Baker and Wong 2013, p. 91, Davoudi 2015b, p. 105). The practical implications of integrated Regional Strategies remain uncertain as the planning system was once again overhauled by the incoming Coalition government in 2010, before the documents came into force.

As has been demonstrated in Chapter 4.3, the GI concept was embedded in NW England’s RSS and RES as well as in the integrated Regional Strategy which never gained statutory status. The uptake of GI on the regional level has been linked to effective lobbying of stakeholders (e.g. the Mersey Forest) at a time when regional plans were produced for the first time, offering the opportunity to influence their content (Gill *et al.* 2015). In addition, it has been argued that England’s regional planning tier was guided by different modes of governance and political culture than the long established national or local level; these particularities will be further discussed in Section 6.3.1.

From 2004, sustainable development was defined as statutory purpose for planning to which all plans must contribute (see Chapter 5.4.2 for a discussion of sustainable development and its significance in UK planning). An associated policy stipulated that new housing should be developed on previously developed land, rather than converting the countryside. An official target was set to create 60 percent of new dwellings on brownfield sites (Hart and Webb 2015, p. 218). During the 2000s, the profile of environmental issues in planning was also increased by EU requirements such as the Water Framework Directive which set out requirements for river basin and flood risk management plans. On the local level,

many communities began to engage with issues of sustainable development or climate change (Nadin and Stead 2014, p. 204f, Davoudi 2015a, p. 284ff).

It can be concluded that the planning system saw rapid shifts under New Labour. A number of new instruments were introduced to simplify planning on the local level and promote a more strategic spatial planning approach. Reforms were devised to increase the flexibility of the planning system, encourage community involvement and the integration with other sectoral plans and strategies as well as to introduce sustainability appraisals of plans and policies (Davoudi 2015b, p. 115). However, the ambitious overhaul of the planning system resulted in “a battery of new acronyms and terms which made it incomprehensible even to the professional planners, let alone members of the public” (Davoudi 2015b, p. 115). The government attempted to ameliorate this situation by producing guidance documents, which added up to several thousands of pages. This led to even more frustration and uncertainty, resulting in attempts to cut back the amount of guidance to reduce complexity (Davoudi 2015b, p. 115). Nevertheless, there were still over 830 pages of national planning policy in 2006 (Allmendinger 2011, p. 50). New Labour continuously sought to adjust and ‘fix’ the planning framework and instruments, leading Allmendinger (2011, p. xi) to conclude that “New Labour was guilty of seeking to achieve too much and not understanding how the system worked.” Despite the ambitious visions of a new planning culture, the effects on planning practise were relatively minor due to initial uncertainty and the needed adjustment period for professional planners (Nadin and Stead 2014, p. 203). While the instruments may have needed more time to establish themselves, many of them were abandoned after the election of the 2010 Coalition government (Morphet 2011, p. 199).

### **6.2.3 Planning under the Conservative-Liberal Democrat Coalition (2010 – 2015)**

With the election of the Conservative-Liberal Democrat Coalition government in 2010, a new wave of planning reforms was set in motion. The most prominent reform concerned the rapid dismantling of the regional planning machinery. Regional planning was declared to have failed, while the local level was argued to be most appropriate for planning efforts. The abandonment of strategic spatial planning and regional planning in favour of local planning was as much ideological as evidence-based: It was in line with the Conservative party’s ideology of the Big Society, which encouraged civic duty, philanthropy and volunteerism, allowing the state to retreat from its former duties (see Chapter 5.3 for a discussion of ideologies underpinning planning debates).

Although the wholesale removal of an entire planning tier seems to signal a major overhaul of planning, Nadin and Stead (2014, p. 205) argue that many trends of the New Labour era continued under the Coalition. Like its predecessor, the Coalition argued that local communities should be given greater leeway and control in decision-making, allowing for more varied local planning policies. Despite the abandonment of the term ‘spatial planning’, elements of the approach have been maintained, in particular by accentuating the importance of collaboration and partnership (Allmendinger and Haughton 2012, p. 95). As a result of the Localism Act of 2011, local planning authorities and other public bodies are required to cooperate across administrative boundaries in the preparation of development plans and in strategic matters (Davoudi 2015b, p. 107). Echoing elements of New Labour’s spatial planning approach, local authorities are encouraged to plan for ‘functional urban areas’ or city regions (Nadin and Stead 2014, p. 205).

The Coalition administration replaced Regional Development Agencies with business-led Local Enterprise Partnerships to promote local economic growth by connecting local authority councillors and business representatives (Colomb and Tomaney 2015, p. 11, Hart 2015, p. 62). In the study region, Local Enterprise Partnerships exist for Greater Manchester as well as Liverpool City Region. Local Enterprise Partnerships have been criticised for their insufficient financial equipment as well as for their lack of

accountability. It has been argued that their design doesn't represent the composition of local communities and limits local democracy in favour of promoting business interests (Hart 2015, p. 62). This is symptomatic of the Coalition's planning reforms which are often couched in a rhetoric of returning decision-making power to local communities: "subtle but significant changes [...] have been made to give more advantage to development businesses" (Nadin and Stead 2014, p. 205).

The Coalition also encouraged neighbourhood planning, allowing parish councils and local community groups ('neighbourhood forums') to produce neighbourhood plans (Allmendinger and Haughton 2012, p. 99f). Businesses may take the lead in neighbourhood forums, which means that businesses can develop plans for the first time in UK history (Tewdwr-Jones 2012, p. 119). As this allows local authorities to be circumvented, "the link between local planning and local authorities serving as the democratic conduit for development choices has been severed" (Tewdwr-Jones 2012, p. 197). Officially, neighbourhood planning was promoted as a more democratic approach to plan-making, as its content is independent from other planning tiers and neighbourhood plans are voted on local referenda. If the majority of participants (not of the total population) votes in favour, the local planning authority must adopt the neighbourhood plan as part of its development plan. This procedure has been criticised as "a majoritarian form of issue-based democracy that creates questions about the marginalisation of certain voices and needs" (Allmendinger and Haughton 2012, p. 100). In the study area, pilot business-led neighbourhood plans have been set up for the Liverpool Innovation Park and Trafford Park, Manchester (Carpenter 2011). The pilot programme was initiated "to make the planning process less regulatory and more firmly focused on supporting rebalancing economic growth" (DCLG 2011). Other effects of the localism agenda have included the abolishment of brownfield development targets and the reintroduction of enterprise zones in which many forms of development are exempt from planning control (Tewdwr-Jones 2012, p. 117).

Combined with the drastic reduction of national planning policies, these changes have caused some commentators to argue that planning in the UK is under attack (Lord and Tewdwr-Jones 2012). Under the Coalition government, over a thousand pages of planning advice were reduced to 58 pages with the introduction of the National Planning Policy Framework (NPPF) in 2012. One of the most controversial aspects of the NPPF was its presumption in favour of sustainable development. In stark contrast to academic understandings of sustainable development, the Coalition clarified that this signified a commitment to economic growth and job creation, placing "significant weight [...] on the need to support economic growth through the planning system" (DCLG 2012, p. 6). This meant that business and development interests were considerably strengthened, while it became more difficult for communities to resist development (Nadin and Stead 2014, p. 206).

The NPPF also enshrines the GI concept and sets out basic instructions on how it should be applied by local planning authorities. In the NPPF, GI is defined as a "network of multi-functional green space, urban and rural, which is capable of delivering a wide range of environmental and quality of life benefits for local communities" (DCLG 2012, p. 52). Local authorities are encouraged to plan for GI, in particular to decrease the climate change vulnerability of new development. Moreover, the NPPF suggests that local planning authorities "set out a strategic approach in their Local Plans, planning positively for the creation, protection, enhancement and management of networks of biodiversity and green infrastructure" (DCLG 2012, p. 26). The corresponding planning guidance describes that GI can support wider planning policy by

- "Building a strong, competitive economy [...]"
- Delivering a wide choice of high quality homes [...]"
- Requiring good design [...]"
- Promoting healthy communities [...]"
- Meeting the challenge of climate change, flooding and coastal change [...]"

- Conserving and enhancing the natural environment” (DCLG 2016).

It can thus be concluded that planning policy under the Coalition pursued two seemingly opposing ideals. On the one hand side, reforms were proclaimed to strengthen local and neighbourhood decision-making and participation. On the other hand, the reforms served a neoliberal deregulatory, business-led and economic growth-oriented agenda (Tewdwr-Jones 2012, p. 22, Tallon 2013, p. 120f). Cowell (2013, p. 36) argues that the Coalition sought to align localism with development. The underlying assumption was that allowing local communities a say in the kind of development they want, communities would be overall more willing to accept new development.

Although regional strategies referring to GI lost their statutory status after regional planning was abolished, local authorities are encouraged by the NPPF to develop GI strategies and frameworks. While the NPPF offers little details, its uptake of the GI concept is noteworthy for two reasons: although the NPPF also addresses issues of biodiversity, ecosystem and landscape conservation, no clear connection to GI is set out. Instead, GI is rhetorically linked to new development. The guidance documents justify the relevance of GI by highlighting its benefits for the economy and place-making before describing health, climate change adaptation and biodiversity benefits.

### 6.3 Modes of regional and urban governance

The previous section outlined the framework of formal planning rules in which the GI concept is embedded. However, governance styles and political culture are also part of the concept’s context. Like formal rules, governance arrangements can influence how and by whom policy decisions are made. The aim of this chapter is to explore regional and urban governance styles and their impact on planning practise. To this end, academic debates about governance will be briefly outlined before exploring two of its manifestations in greater detail: Section 6.3.1 will describe the phenomenon of ‘soft spaces’ of informal governance, linking it to regional planning and the uptake of the GI concept. Section 6.3.2 explores the emergence of entrepreneurialism as a dominant form of urban governance and the significance of green city branding strategies.

While some authors understand government and governance as opposites, others describe governance as “a continuum ranging from governance by government, through governance with government, to governance without government” (Smith *et al.* 2014, p. 53). In this thesis, the term ‘governance’ is used as a shorthand for a mode of steering and decision-making involving a range of actors beyond traditional government; both ‘governance with government’ and ‘governance without government’ are included in this understanding. In a traditional government arrangement, the state holds a monopolistic position as controlling authority with responsibilities which are clearly separated from those of private and civil actors, although stakeholders may be involved through formal consultation procedures (Smith *et al.* 2014, p. 52f). This approach is based on clear regulatory structures and formal steering instruments (Reimer *et al.* 2014, p. 15). In contrast, governance approaches are marked by the inclusion of new actors in decision-making processes and the recreation of market principles in the public sector. Ives (2015, p. 3) describes that “the language of governance puts government on equal footing with other actors” and assumes that the public interest is best served by collaboration between various actors, rather than solely through the actions of elected governments. Governments and their elected representatives are thus demoted from their role as sole decision-makers and protectors of the public interest to one of several actors in the decision-making process. Governance is marked by the increasing entanglements between public, private and community actors, while the boundaries between these spheres become more permeable or fuzzy. Private, market-led actors and community groups become more involved in arenas which were previously the sole responsibility of public actors. Ideally, this allows for new types of local knowledge and resources to enter the political arena and enables effective action through the cooperation of a range of actors (Reimer *et al.* 2014, p. 15, Smith *et al.* 2014, p. 53).

Over the past decades, a shift from government to governance has been proclaimed in various fields, including environmental and open space management, nature and forestry policy and spatial planning (Arts and Leroy 2006b, Smith *et al.* 2014, Konijnendijk 2015). In the UK, shifts from government to governance have taken various forms: Since the 1980s, the state has lost its monopoly on the delivery of public services, as the private sector was perceived to be more efficient and flexible. The public sector was reformed to adopt private sector management principles such as a focus on competitive services and outputs. For instance, local governments were obliged to procure and contract out public services to the bidder offering 'best value'. In the case of open and green space management the effects were devastating, as skilled workforce and costly practises were considered unprofitable (Lindholst *et al.* 2014, p. 32). Despite reforms over the following decades, principles of competitiveness and deregulation have been internalised to a large degree. Current governance approaches are based on the understanding that public actors cannot solve policy issues in isolation but rather through partnerships with other players. While non-public stakeholders were considered as potential contractors and service providers in the 1980s, the modern governance approach highlights the importance of partnerships and collaboration (Smith *et al.* 2014). Governance is marked both by the redistribution of political powers both across societal domains and geographical scales: While new actors gain authority in political arenas, the concentration of power at the national level is diminishing as sub-national and international levels gain significance. Governance also relies less on binding legal instruments and formal rules, as 'soft', flexible and informal tools become more prevalent (Arts and Leroy 2006b, p. 273). One example of new forms of governance is the emergence of 'soft spaces' which will be explored in the following section.

### 6.3.1 England's regions as 'soft spaces' of informal governance

As described above, it is often claimed that public sector reforms and globalisation have set in motion a shift from government to governance, associated with the decreasing importance of legal instruments and formal rules (Arts and Leroy 2006b, p. 273). However, the interplay between spheres of government and governance are complex. One way to conceptualise their relationship is through the notion of 'soft spaces', which will be explored in this section. After describing the characteristics of soft spaces, it will be discussed whether GI planning in NW England exemplifies this form of informal governance.

According to Thomas and Littlewood (2010, p. 204), there are currently two broad circles at play in policy-formulation in England. On the one hand side, there is the sphere of traditional hard government. On the other hand, new spaces of 'soft' governance are becoming increasingly important at their expense. The spheres of soft governance and hard government tend to apply to different geographical boundaries, as so-called soft spaces of informal governance frequently emerge on scales which are not traditionally the focus of government, such as regions or city regions (Allmendinger and Haughton 2010, p. 811f, Baker and Wong 2013, p. 90). Soft spaces involve a wider range of actors and are driven by different logics and rules. The ambitions of informal soft governance are generally aligned with economic development goals, while the traditional hard government sphere is led by wider objectives and encompasses stronger environmental goals (Thomas and Littlewood 2010, p. 204).

It has been suggested that the introduction of regional planning under the Labour administration opened up a new 'soft space'; In contrast to other planning levels, regional planning was organised according to new rules and more informal styles of governing (Allmendinger and Haughton 2010, Thomas and Littlewood 2010, p. 204). Regional policy-making was primarily concerned with the promotion of economic place competitiveness and privileged economic growth over other policy goals (Thomas and Littlewood 2010, p. 205). In NW England, this orientation is confirmed by the authority and resources allocated to the Regional Development Agency in comparison to the Regional Assembly (see Sections 4.3.5 and 6.2.2). As its members were not elected, the public accountability of regional authorities was

limited, pointing towards a soft governance approach. However, they also exhibit traits of hard government as they were initiated to serve specific central government goals and were accountable to central government (Thomas and Littlewood 2010, p. 207).

The GI concept gained acceptance and popularity at a time when regional strategies were produced throughout England. Consequently, GI was absorbed into formal plans on the regional level. In NW England, GI was embedded in the RSS, the RES and the proposed integrated Regional Strategy. The GI concept was thus incorporated in statutory documents, linking it to a hard government setting with formal and bureaucratic rules. However, as Thomas and Littlewood (2010, p. 213) argue, the regional planning tier itself was “fluid and untried” and operated according to a somewhat different logic than other planning tiers. GI planning itself can also be understood as a soft governance counterpart to traditional hard government approaches of greenspace management, such as green belt planning. Highlighting the differences between green belts and GI, Thomas and Littlewood (2010) argue that there has been a clear shift in the way greenspaces are considered in planning. While green belts are associated with stringent restrictions and exact geographic delineation, GI Strategies and Frameworks do not include detailed maps or statements about the precise spatial coverage of GI elements. More importantly, not all areas which are described as GI are necessarily permanently retained. As informal guidance, a GI approach includes no formal restrictions and allows planning authorities to trade losses in some sites for gains in others. In other words, conflicts with development may be circumvented by cherry-picking actions which fit with economic growth oriented strategies. The transitory, fluid character of GI contradicts the formal, permanent protection of greenbelts. In contrast to the traditional protectionist perspective associated with green belts, GI obeys a different logic and is couched in a language that is predominantly concerned with place competitiveness, excluding moral engagements with nature (Thomas and Littlewood 2010, p. 217). GI must demonstrate its value and contribution to larger goals, reflecting “the new metrics of soft-space governance, with its domination by productivity, competition and enterprise targets” (Thomas and Littlewood 2010, p. 219). A range of methodologies have consequently been developed to measure the economic impact of GI in order to justify its creation, protection or management (Sunderland *et al.* 2015).

It can be concluded that the GI concept is a creature of soft governance, initially promoted by informal networks of stakeholders and advocating a more permissive approach to greenspace management than traditional protectionist perspectives. Nevertheless, GI has also permeated the sphere of hard government through its inclusion in formal plans. The GI concept currently coexists with traditional green belt policies, although there is little engagement between both concepts (Thomas and Littlewood 2010, p. 217). The coming years will show how the power balance between GI and greenbelt policies develops and whether both will continue to co-exist. The rising popularity and acceptance of GI may be interpreted as confirmation that more informal, ‘soft’ approaches are gaining importance in UK planning, although they have not replaced formal instruments and rules. In relation to greenspace planning, this trend has also been associated with new ways of understanding and communicating the value of the environment, shifting from a moralist perspective of protecting nature for its intrinsic value towards an emphasis on clearly categorised, quantified and monetised benefits. The rise of the GI concept has been accompanied by the development of elaborate methodologies to demonstrate its economic value in order to justify its protection, creation or maintenance.

### **6.3.2 Urban entrepreneurialism and green city branding**

In the previous section, it was described that the GI concept became embedded in the soft space of English regional planning before cities and city regions incorporated the concept in informal strategies and frameworks. While the last section highlighted how GI planning differs from protectionist green belt planning, this section demonstrates how GI plans fit into common modes of urban governance. To this

end, the shift of urban governance towards entrepreneurialism and cities' selective commitments to sustainability as part of 'branding' strategies will be explored.

The emergence of the entrepreneurial city was first described by Harvey (1989), who argued that the way cities are managed has changed as the economy entered a post-Fordist era. Until the 1970s, local authorities were focused on delivering and implementing welfare policies which were designed on the national level. In the post-Fordist era, cities faced new challenges as the production-based economy declined and global competition between cities began to emerge. While the Fordist city was focused on demand-side policies, the entrepreneurial city is based on the provision of an array of supply-side policies and strategies to attract business and the upper and middle class (Beal 2012, p. 405). Under the heading of urban entrepreneurialism, "traditional local boosterism is integrated with the use of local governmental powers to try and attract external sources of funding, new direct investments, or new employment sources" (Harvey 1989, p. 7). Generally, entrepreneurial cities adopt strategies to enhance their locational value, encourage local growth and economic development, while "the public sector [takes] over the characteristics once distinctive to the private sector - risk-taking, inventiveness, promotion and profit motivation" (Hall and Hubbard 1996, p. 153). One of its most powerful drivers is the paradigm of place competitiveness or the idea of an increasingly harsh competition between cities in a globalised era where few barriers restrict the free movement of business, investment, visitors and skilled workforce. Harvey (1989, p. 10) argues that inter-urban competition functions as an external coercive power: Cities are under increasing pressure to present themselves as attractive locations, forcing them to operate in line with the logic of capitalist development. In the face of inter-urban competition, cities and city regions may be compelled to establish new local and regional identities, which frequently includes the promotion of a green image (often described as green city branding or eco-branding).

The role of environmental policies in the entrepreneurial city is controversial: While some authors perceive entrepreneurial urban strategies to be disproportionately focused on economic interests, others claim that current policies are distinguished by their investment in environmental and social elements of urban development (Beal 2012, p. 405). The main point of contention is that cities may seek to promote a green image primarily to increase the local tax base rather than to protect the environment for its intrinsic value (Beal 2015). Beal (2012, p. 407) describes that European cities initially incorporated environmental policies as a result of pressure from grassroots movements in the 1970s and 80s. Since the 1990s, many European cities have developed strategies which differ markedly from these early incarnations: Modern green city visions are often closely linked to place branding strategies, which aim to strengthen economic development (Beal 2012, p. 409). Consequently, "[t]he environment is increasingly considered as an extra-economic factor of urban growth and as a tool to enhance urban competitiveness" (Beal 2012, p. 405).

Entrepreneurial cities promoting a green image often advertise their commitment to high quality of life, sustainable development and strong environmental performance. However, 'greenness' may be construed in different ways: For instance, it can relate to environmental measures on the policy level as well as to an abundance of greenspace in the city. Checker (2011, p. 213) describes that cities promoting a green image generally apply a selective interpretation of sustainability, allowing them to assign more weight to the economic aspects of sustainability, while subordinating aspects of environmental conservation and social justice. Anderberg and Clark (2013) understand eco-branding as a mode of neoliberal planning in which sustainability goals are set with the clear intention of increasing economic profits. The tendency of entrepreneurial cities to cherry-pick only those environmental measures and themes which complement economic development goals means that rhetoric commitments to sustainability "may have absolutely nothing to do with concrete, measurable progress on relevant environmental indicators" (Hølgersen and Malm 2015, p. 277). This selective uptake of environmental concerns in urban strategies may simulate a consensus which marginalises grassroots actors and citizen movements seeking more radical environmental action (Beal 2012, p. 415). Consequently, Beal (2012, p. 405) considers green branding strategies "the vanguards of the rise of a post-democratic era".

The links between the adoption of eco-branding strategies in entrepreneurial cities and the analysed GI documents are clear: The need for action on GI is frequently justified by highlighting the increasingly harsh global competition and GI is argued to boost economic success and the location's international reputation. While all most documents refer to the positive effect of GI on quality of place and quality of life, GI is specifically described as an element of creating a specific reputation or 'brand' for Manchester and Greater Manchester. This focus on place competitiveness reflects the logic of entrepreneurial urban governance. As described in general accounts on the role of environmental issues in entrepreneurial cities, the GI documents argue that environmental measures have positive socio-economic impacts. While critics of urban eco-branding strategies argue that economic considerations generally overshadow environmental and social commitments, this tendency may also apply to GI strategies: The ability of GI to contribute to socio-economic goals is typically explored in more depth than environmental goals. Topics relating to ecological connectivity and biodiversity are often framed as prerequisites for economic success rather than goals in their own right.

## 6.4 Funding mechanisms for GI implementation

The previous chapters explored the framework of rules in which NW England's GI planning is embedded by outlining formal rules of the planning system and informal rules associated with modes of regional and urban governance. While Chapters 6.2 and 6.3 focused on the context of GI planning, this chapter describes the rules which guide its practical implementation. Although the analysed GI documents endorse partnership approaches and the involvement of a wide range of actors in the delivery of GI goals, the implications of such approaches remain obscure. This chapter assesses different funding and delivery mechanisms for GI, building on a recent study by Mell (2016). As a member of the Liverpool's Strategic Green and Open Spaces Review Board, Mell provides insights into ongoing debates concerning the future of greenspace management which are likely to reflect the situation in other English post-industrial cities with similar challenges.

GI planning in NW England has been entangled with changing funding rules from its very inception: Chapter 4.2 demonstrated that Community Forests became GI's greatest advocates in the aftermath of public funding cutbacks as they sought to secure their financial viability by creating a new field of activity. Changing rules of funding have not only contributed to the uptake of the concept in policy but also influenced its translation into action on the ground. As public funding became increasingly scarce after the 2008 economic crisis, local planning authorities struggled to find budgets for greenspace provision and maintenance. This section traces shifts in the funding landscape, highlighting a general trend towards the increased use of non-public funding mechanisms. Building on this review, the potential and risks of different modes of GI delivery will be evaluated.

The funding landscape for GI has been transformed throughout the 2000s and 2010s. Since the election of the Coalition government in 2010, the type of funding available to local authorities has changed: While comparatively stable central government funding programmes existed during the 2000s, a diverse array of funding pots took their place in the 2010s. The funding landscape under the Coalition government is more erratic and unpredictable, as new budgets for initiatives are regularly formed by shifting money from elsewhere (Webb 2015, Smith *et al.* 2014, Moffat 2015). In light of this heavy reliance on short-term initiatives, the Coalition has encouraged local authorities to cooperate with businesses in Local Enterprise Partnerships. This is meant to make local authorities more responsive to the volatile funding environment and enable them to develop competitive bids whenever opportunities arise. As local authorities are called upon to secure funding through initiatives, it has become more challenging to develop more long-term, strategic strategies and join up single investments (Webb 2015, p. 466). The quantity of public funding was also reduced, shifting "from a funding feast to funding famine" under the Coalition government (Webb 2015, p. 466). While less funds are transferred from central government to local

authorities, the budget cuts have not been applied homogeneously. Indeed, some local authorities have faced budget cuts up to 10 times as high as others. The North of England was hit particularly hard; Since the election of the Coalition government in 2010, Liverpool's City Council has faced funding cuts of 58 percent, while Manchester's budget has been reduced by almost 40 percent (BBC News 2014, Liverpool City Council 2015). Webb (2015, p. 468) argues that we are currently seeing planning history repeat itself; Similar to processes of the 1980s, mainstream budgets of local authorities are being drastically cut. While the provision of ordinary public services is thus becoming more challenging, this trend is partially disguised by the introduction of a range of initiatives and task forces promising short-term funding for innovative schemes.

As planning authorities are forced to make budgetary savings, they are focusing on maintaining the delivery of statutory services at minimum levels while discretionary services, such as greenspace provision, are bearing the brunt of the cuts (Moffat 2015, p. 408, Mell 2016). Alternative public, private and community-led funding mechanisms are often the only way to maintain greenspaces. Outlining current debates in Liverpool, Mell (2016) explains that public funding sources may need to be complemented by a range of alternative funding mechanisms to overcome the budget deficits. According to Mell (2016), four funding mechanisms are currently considered in Liverpool:

1. Developer contributions: The process of negotiations between local authorities and developers may be used to generate GI funding. Developers may be obligated to provide GI as part of the development or to contribute towards GI through payment schemes. While negotiated payment schemes are traditionally used to fund grey infrastructure for new developments, local authorities may choose to fund GI through such developer contributions. In a bid to justify their use for GI, a wealth of literature has emerged highlighting why GI should be considered essential infrastructure as well as its contribution to the area's attractiveness and house values.
2. Land sales and endowment funds: GI may also be financed by selling public land and developing endowment funds to cover maintenance costs for the remaining public GI. In Liverpool, the sale of a section of a public park to create an endowment fund is current debated.
3. Private funding or donations: Private investors may choose to sponsor GI by buying sites and managing greenspaces for the city as a way to obtain planning consent or generate positive public relations. For instance, Mell (2016) suggests that Liverpool's soccer teams could sponsor GI as a way to complement their philanthropic and community outreach activities.
4. Community initiatives: Community groups may take charge of certain local greenspaces. The full legal responsibility for the management of certain greenspaces may be transferred to community groups. This allows local authorities to shift funding, management and legal ramifications of ownership for small parks to community groups. Community-led initiatives can tap into new types of national funds which are awarded for small-scale actions (e.g. tree planting) and generate funding through crowd-sourcing. Liverpool City Council is currently exploring the possible transfer of several sites to local communities. Additionally, informal initiatives such as volunteering or guerrilla gardening projects may also contribute to greenspace management (Mell 2016).

While Mell (2016) mostly highlights the potential of these alternative funding mechanisms, several risks can also be identified. In the following, the proposed options they will therefore be critically assessed to highlight possible implications for GI planning.

It is perhaps unsurprising that developer contributions are at the top of the considered funding mechanisms, as the GI agenda in the UK has been aligned with economic development and housing growth goals from its inception (Payne and Barker 2015, p. 375). Payne and Barker (2015, p. 382) note that there has been a "marketization of green infrastructure provision" in the UK. This is not inherently considered problematic in academic literature as some argue that developers may enhance the environmental performance of their developments to demonstrate corporate social responsibility, increase the

design quality and market value of the development, allowing for win-win outcomes (Payne and Barker 2015, p. 382). However, recent research on developers' attitudes toward GI demonstrates that these perspectives may be overly optimistic: Speculative housebuilders were found to consent to GI delivery only where these clearly increased market values. While the economic benefits of GI are stressed in GI strategies and academic literature, they are not currently recognised by most housebuilders (Payne and Barker 2015, p. 391). Indeed, the majority of housebuilders is unwilling to invest in more or different types of GI unless formally required to do so (Payne and Barker 2015, p. 387). Moreover, housebuilders generally have a narrow understanding of GI, most frequently considering it synonymous with onsite greenspace for the use of residents (Payne and Barker 2015, p. 384). These results raise questions about the suitability of private development as a GI delivery mechanism. There appears to be a gap of understanding between developers and academics about the nature and principles of GI. As long as private developers interpret GI simply as on-site greenspace for the use of residents, their design and management practises are unlikely to reflect ecological and social awareness. Mell (2016) also recognises that the use of negotiated financial contributions for GI is not without pitfalls: local authorities must be in a position to negotiate significant sums with developers, who generally argue that such burdens make the investment economically unviable. As developers may choose to locate in less demanding areas, this can potentially drive a race to the bottom (Mell 2016). Moreover, developer contributions depend on the realisation of new developments and may dry up in unfavourable economic situations (Kreutz *et al.* 2014, p. 107).

The second proposed funding mechanism included leveraging additional funds through the sale of public land. A recent study suggests that Liverpool is no exception in debating this move: 45 percent of local authorities in the UK are considering selling parks and greenspaces or transferring their management to others (Heritage Lottery Fund 2014). On the national level, the sale of conservation and forestry land was also proposed by the Coalition government in 2010 (Apostolopoulou and Adams 2015, p. 25). However, the sale of public land is often strongly opposed by the communities which stand to lose cherished greenspaces or other community resources (Mell 2016). While mutually beneficial agreements between local authorities and investors might be worked out in some cases, privatisation might reduce functionality or public access to the site in others (Mell 2016).

Both the sale of public land and the enrolment of private sponsorship and donations are associated with several threats: commitments to the public good may be jeopardised or subordinated to economic concerns as spaces are commercialised and privatised (Kreutz *et al.* 2014, p. 107ff). Private donations can be attached to specific conditions which may not be in line with the goals of public authorities, resulting in the increasing influence of the private sector on GI activities (Kreutz *et al.* 2014, p. 107ff). Moreover, donations frequently target high-profile, city centre sites rather than at smaller, less visible locations. Donations from private entities are also inherently uncertain, which makes long-term planning more difficult (Walls 2014). Finally, it has been noted that the enrolment of the private sector in funding may crowd out public funds; once the private sector has demonstrated its ability and willingness to cover costs, the public sector may direct its limited funds at other uses (Walls 2014).

Finally, community initiatives are described as a way to tap into local knowledge, skills and enthusiasm, while strengthening links with the community and promoting social cohesion. The full transfer of responsibilities is contingent on the capability of local communities; they must demonstrate their expertise and time commitments to manage the greenspace and generate necessary funding. As a result, this mode of management may be restricted to communities with high social and financial capital (Mell 2016). A potential pitfall of volunteer involvement in GI management is that it might be seen as a replacement for public sector budgets and activities, causing the public sector to further withdraw from these tasks (Kreutz *et al.* 2014, p. 107ff).

Summing up, local authorities throughout the UK are facing challenges as a result of the government's austerity measures. In this context, discretionary services such as greenspace management increasingly rely on new sources of funding. As has been shown above, local authorities are currently looking

at ways to increase the contribution of investors and developers, creating endowment funds through land sales as well as enrolling private sector sponsors and community volunteers in efforts to maintain GI. While public funding for green and open spaces remains commonplace in many continental European countries, different funding models are on the rise in countries such as the UK, Ireland and the US. According to Kreutz *et al.* (2014, p. 103), these countries are increasingly employing market led models and the third sector to co-finance or even replace public funds, as the public sector seeks to generate income from public space and contract out management activities. The authors describe this trend as a symptom of a larger “shift from public administration of open space as public goods to more neo-liberal models of public–private cooperation and privately owned and/or managed public space” (Kreutz *et al.* 2014, p. 103). While such approaches may include social enterprises and NGOs, they are nevertheless guided by market mechanisms. The reliance on market actors to provide and manage GI is likely to have impacts on its shape and quality. As market actors are primarily led by economic considerations, environmental and social considerations may receive less weight in the practical implementation of GI projects. Other than the potential clash between private interests and wider public goals, an underlying lack of understanding of GI principles may hamper the realisation of high-quality projects which provide environmental, economic and social benefits.

## 6.5 Discussion of preliminary results

Several conclusions can be drawn after scrutinising the dimension of rules of the game in Chapter 6. It was found that the framework of formal and informal rules has shaped the emergence and evolution of the GI concept in NW England in several ways. In the following, the main findings will be discussed.

In NW England, the GI concept rose to popularity during the New Labour administration. During this era, the planning system was reformed to strengthen strategic spatial planning and a statutory regional planning tier was introduced. With the introduction of England’s regional planning tier a ‘soft space’ of informal governance emerged, creating a new and untried policy field which operated according to a different logic than national or local planning. Regional planning was tinged with New Labour’s ideology, embracing decision-making through flexible partnership arrangements between public, private and community actors as well as broad unifying concepts. At the same time, regional planning was predominantly concerned with economic development, prioritising economic growth and competitiveness over other policy goals. As NW England’s RSS and RES were created for the first time, Community Forests were able to successfully lobby for the inclusion of the GI concept in formal planning strategies. The fact that regional planning was newly established offered the opportunity to introduce new concepts and instruments which complemented economic development goals. Regional planning was also more open to informal instruments such as GI planning, while traditional planning mechanisms were more firmly anchored on other tiers. As a result, the regional planning tier provided fertile ground for the introduction of the GI concept. In NW England, this was accompanied by the creation of regional networks and coalitions promoting GI. The predominant focus on economic development of the regional planning tier is mirrored in the language associated with GI planning in NW England. As described in Chapter 4.3, the NWDA was a powerful and well-funded actor in NW England and engaged intensively with the GI concept. As a result, the debate became increasingly concerned with the identification and monetarisation of economic benefits of GI, while the social and environmental dimensions of the concept receded into the background. The rules of regional planning have thus decisively shaped the rise of the GI concept and its understanding in NW England.

While the GI concept had been formally embedded in NW England’s regional planning during the Labour administration, the regional tier and its institutions were abolished after the election of the Coalition government in 2010. As a result, the framework of rules around the GI concept was changed signifi-

cantly. All regional strategies advocating GI in NW England lost their statutory status. Some of the regional groups advocating GI, such as the NW GI Forum, continue to operate as informal partnerships (The Mersey Forest 2013b). While GI policy-making on the regional level thus came to an abrupt end, the Coalition modified national planning policy by introducing the NPPF. This document encourages local planning authorities to plan for GI, understanding GI primarily as a means to reduce the climate change vulnerability of new development. Although the importance of GI is recognised in the context of development, its relationship with other policy goals and planning instruments (e.g. biodiversity conservation or green belts) is not clarified. Local authorities are called upon to plan for GI, although no clear guidelines or obligations are set out.

The production of sub-regional GI plans in NW England was thus initially advocated by the RSS and later by the NPPF. Despite the new introduction of the term 'GI', the storylines of GI frameworks and strategies reflect long-established themes of urban entrepreneurialism and eco-branding strategies. As described in Chapter 5.2, the analysed GI documents emphasised the need to improve and maintain GI in light of the global competition between cities; The pursuit of economic success and international standing as a reputable location is described as a key justification for the documents' preparation and investment in GI. The potential of GI to attract business, talent and tourists is highlighted throughout the documents and priority areas for GI interventions are frequently selected based on their potential to contribute to this goal. Such lines of argument have been a fixture of entrepreneurial urban governance strategies since the 1990s, seeking to attract new residents, visitors and investors by building a positive image. Eco-branding has become a popular strategy to increase a location's attractiveness by promoting a green image, framing the environment primarily as a profit-generating factor. This trend has been criticised as rhetorical commitments to sustainability are often at odds with actions on the ground. GI strategies and frameworks show similarities to eco-branding strategies as GI is described as a prerequisite for economic success, emphasising its economic value more so than environmental or social concerns. While ecological connectivity and biodiversity are considered, they are often described to underpin sustained economic growth rather than being goals in themselves. However, the content and character of the GI documents should not be interpreted as a pure reflection of local authorities' position; it is also entwined with the rules guiding GI planning and the manner in which GI measures are delivered in NW England.

The emergence of the GI concept has been linked to a changing framework of rules guiding greenspace management. The GI concept marks a clear departure from traditional instruments such as greenbelt protection. While greenbelts represent formal designations in land use plans and serve to permanently protect areas from development, GI is an informal and flexible description. In GI frameworks and strategies, the precise boundaries of GI are not mapped on a detailed scale. Moreover, the loss of GI in one area may be acceptable where it serves the higher goals of the city or city region or where losses in area are offset by gains in quality. The delineation of GI is thus more fluid and its designation is not in itself a commitment to its preservation. GI planning can therefore be regarded as an informal counterpart to greenbelt protection. The aim of GI strategies and frameworks is not to specify formal requirements but to persuade different actors to take voluntary action. Consequently, the emphasis on economic benefits of GI may be interpreted as an attempt to appeal to a range of stakeholders outside the environmental field and gain their support for GI interventions. While traditional greenspace management and the protection of greenbelts was generally undertaken by public actors, GI planning requires a range of new actors to become involved.

GI frameworks and strategies call upon the private and civil sector to take on new responsibilities to create and maintain GI. This allocation of responsibilities goes hand in hand with a redistribution of the financial burden of GI management. Exploring new funding mechanisms has become a priority in the aftermath of the economic crisis and the restructuring of the public sector. As the budgets of public authorities were drastically cut over the past decade, non-statutory services, such as the provision of greenspaces, have become more difficult to finance. Having faced disproportionately harsh budget cuts,

the analysed cities and city regions are forced to explore new sources of funding, such as contributions of investors and developers, creating endowment funds through land sales or private sponsorship and volunteerism. While mainstream public budgets are reduced, national and European funding for innovative schemes may be available to partnerships proposing GI improvements.

The GI debate in NW England is closely linked to urban regeneration and new development is presented as an opportunity to provide high-quality GI. Consequently, developers and other private actors are frequently called upon to deliver or contribute toward GI improvements. The fact that developer contributions are described as a major opportunity for GI delivery also relates to the traditional features of the UK planning system. In comparison to continental European planning systems, UK planning is characterised by more incremental and less long-term strategic decision-making. Planning processes are highly flexible and discretionary, allowing public authorities and developers to negotiate conditions for development proposals. As a matter of course, developers have paid levies for the provision of new infrastructure as part of development permits. The negotiation between public authorities and private actors has been recognised as an opportunity to secure funding for GI measures in times of austerity. By employing the term 'infrastructure', the GI concept can be interpreted as a bid to gain access to such processes and funds. Against this background, much effort has been invested in rebranding green-spaces as essential infrastructure, demonstrating that its upkeep is no less important than grey infrastructure's.

Relying on developer contributions to fund GI creation and maintenance is not without pitfalls. It may be relatively easy to persuade developers to create GI where it contributes to the development's aesthetic appeal and values or where it reduces cost through direct energy savings. However, the economic benefits of GI creation or improvement are not always transferable to individual agents. Where no direct economic benefits are apparent, developers are unlikely to invest in GI unless formally required to do so. Moreover, their focus on economic outcomes and lack of understanding of GI principles makes it unlikely that the full potential of the GI concept as described in academic literature will be realised. Other proposed delivery mechanisms such as private sponsorship, land sales or volunteerism also bear risks; critics caution that such mechanisms may lead to an unequal distribution of greenspaces amongst neighbourhoods of different incomes and that public accessibility may be reduced as a result of privatisation. Although local authorities may be forced to consider alternative funding mechanisms in light of budget cuts and their implications for the delivery of GI remain uncertain, their hazards should not be overlooked.

## 7 Conclusions, reflection and recommendations

### 7.1 Introduction

Reviewing the current academic debate on GI, it was found that GI is often approached as a politically neutral entity rather than as a tool which is filled with meaning by certain actors and employed in a specific political, institutional and regulatory context. The majority of literature on GI addresses the benefits and functions of GI rather than assessing the reasons behind the concept's emergence, its manifestations and practical consequences (Lennon 2014). The dearth of critical assessments of the concept's added value and its position in a larger socio-political context was identified as a major weakness in the current debate. The blindness towards context is particularly problematic as many EU member states are beginning to engage with GI as a result of the EU's 2013 GI Strategy (EC 2013). They may be tempted to use the UK's experience with GI as a model, as the vast majority of academic and practitioner literature on GI in the European context emanates from the UK, where GI has received a high level of attention, experimentation and research interest over the past decade.

This thesis argued that for other countries to benefit from the UK's long experience with GI planning, the context in which it emerged and evolved must be understood. Against this backdrop, this thesis provided a case study on the emergence and evolution of the GI concept in NW England, a forerunner amongst the UK's regions in engaging with GI. In order to explore how NW England's adoption of the GI concept fits into a broader political context, three overarching research questions were formulated:

1. By whom and how was the GI concept promoted in NW England?
2. Does the GI discourse in NW England reflect dominant discourses relating to political ideology or environmental and planning policy?
3. Which formal and informal rules guide GI policy-making and planning in NW England?

By exploring GI as a tool which is embedded in a specific political, institutional and regulatory framework, the thesis sought to highlight how contextual constraints and opportunities have shaped the content and organisation of the GI concept in the case of NW England.

The following chapter looks back on the study's main findings. Consequently, Chapter 7.3 will critically reflect on the research design and its limitations as well as on the significance of the study's results. Finally, Chapter 7.4 concludes with a number of recommendations for policy and practise as well as for further research.

### 7.2 Conclusions

#### 7.2.1 The influence of regional actors on GI policy-making and planning

The investigation of actors which promoted GI in NW England determined that the region's Community Forests played an important role in the concept's adoption by regional planning authorities. In particular the Mersey Forest has been a vocal advocate of the GI concept, successfully lobbying for its inclusion in regional strategies and programmes. The Community Forests have also been instrumental in connecting stakeholders in the region by setting up a regional Think Tank, Unit and Forum on GI (Mell 2011, Gill *et al.* 2015).

GI took root in formal regional planning because two regional authorities, the NWDA and NWRA, embraced the concept in their formal plans and activities. The NWRA included GI in the RSS, while the

NWDA engaged with the concept in its RES as well as in a range of publications, projects and programmes. The success of the Mersey Forest's lobbying for GI may be explained by two factors: firstly, the regional planning tier was in its early years and the content of regional strategies was not yet firmly established. Secondly, the Mersey Forest adapted its language to each audience, recognising the character and mission of the regional authorities it addressed (Gill et al. 2015, p. 139). Rather than seeking to convince the NWDA, an agency tasked with facilitating economic development, to engage with issues of habitat conservation, GI was argued to add value to the dominant goals of boosting growth. Instead of challenging dominant conceptions, environmental interests were deliberately hitched to the more popular storyline of growth and competitiveness (Antrobus 2011, p. 210).

While both the NWDA and the NWRA embraced the GI concept, they emphasised different aspects. The NWDA's activities focused primarily on the economic benefits of GI interventions and methods to quantify and monetarise the returns on GI investments. This perspective highlighted that environmental activities could complement the mainstream economic ambitions of the region, contributing towards sustainable growth and regional competitiveness. The NWRA's position of GI was less concerned with economic gains, placing more importance on environmental and social aspects than the NWDA. While the NWDA's activities linked GI to private development and sought to persuade private actors to implement GI measures, the NWRA advocated strategic GI planning involving a range of stakeholders rather than piecemeal interventions by developers. The NWRA also cautioned that tensions may arise between different uses of GI (e.g. recreational use and biodiversity conservation), an issue which the NWDA did not address (GONW 2008, NWDA 2006, 2009).

The relative power and resources of the described regional actors has significantly influenced the evolution of the GI concept in NW England from its very inception. The Mersey Forest's strong advocacy of the concept has been linked to the diminishing political and financial support of its traditional field of work restoring derelict post-industrial landscapes. As funding for Community Forests became scarce, they have sought to use their expertise in new fields to secure their continued existence. In the case of the Mersey Forest, this has included a new focus on GI. As a forerunner, it has lobbied for the concept's uptake by regional authorities, thereby creating a new field of work for itself. As GI experts, the Mersey Forest guided the GI strands of programmes such as NENW and the CCAP (Mell 2011).

While the NWDA produced a comprehensive body of plans, reports and programmes concerning GI, the role of the NWRA has been limited. This is linked to their power relationship: At the height of regional planning in England, the NWDA was the best-funded Regional Development Agency in England with a budget 145 times as high as that of the NWRA in the fiscal year 2003/04 (Deas 2006, p. 87). Over the course of several reforms to regional planning, the NWRA lost further support. It is therefore unsurprising that the NWDA's interpretation of GI came to dominate the regional debate. Although the NWDA and NWRA cooperated on the production of several plans, the NWRA's focus on strategic and cooperative GI planning and insistence that environmental, social and economic aspects be considered on equal footing are conspicuously absent from these documents. It is also noteworthy that the cooperation between Community Forests and the NWDA predates the rise of the GI concept. Since 2003, the NWDA has funded a landscape regeneration programme ('Newlands') which is implemented by Community Forests and supports environmental improvements which raise the area's attractiveness and attract investment (Dudley 2003, Davies 2014). This demonstrates that environmental issues have long been linked to economic regeneration in NW England and that partnerships between regional actors involved in both fields are well-established.

## 7.2.2 Linking NW England's GI discourse to overarching political discourses

Although the regional planning tier was dismantled after 2010, GI planning continues in NW England's cities and city regions. In Manchester, Greater Manchester, Liverpool and the Liverpool City Region, GI strategies and frameworks have been published between 2010 and 2015. Using these documents as a proxy for NW England's GI current discourse, it was determined that GI is closely entwined with economic growth and urban regeneration goals. A recurring theme is the potential of GI to raise the locations' competitiveness and attractiveness, thereby supporting the cities' or city regions' goal of becoming internationally renowned locations, which attract businesses, residents and visitors. High-quality GI is also linked to improvements of quality of life and quality of place, recreation opportunities, health, climate change adaptation and ecological connectivity. The importance of such social and environmental aspects is often emphasised by rhetorically linking them to economic benefits. Mainstream economic concepts and values are thus employed to highlight that GI complements socio-economic goals rather than generating conflicts. With the exemption of a mention in Liverpool's GI Strategy, potential conflicts between socio-economic and ecological goals are not addressed. Remarkably, new development is portrayed as an opportunity to establish new, high-quality GI rather than being at odds with safeguarding GI. It also became clear that GI strategies and frameworks seek to highlight opportunities to align GI interventions with economic goals in their priorities for GI action. Areas in which GI measures are considered particularly important are often those with high public visibility and impact on the location's image, such as city centres, key access routes and major development projects.

The GI discourse is in line with storylines about the environment which have gained popularity in planning discourses in recent years (Flint and Raco 2012b, Apostolopoulou and Adams 2015). It frames the environment as a storehouse of resources, emphasising the utility of the environment for local communities, rather than its intrinsic value or importance for non-human species. The environment is also described as a tradable commodity, where losses of greenspace in one location can be offset by gains in another location, or be traded against gains in quality or economic or social improvements (Davoudi 2015a, p. 249). The GI discourse reflects the ecological modernisation approach to sustainable development which has been embraced in the UK since the 1990s (Whitehead 2007). This approach suggests a virtuous link between economic growth and environmental protection, indicating that they can reinforce rather than contradict each other. The GI documents' insistence that GI supports economic competitiveness, disregard of potential conflicts and reliance of mainstream economic values rather than ideological or ethical reasoning is typical for ecological modernisation approaches. A further feature is their use of voluntary commitments and partnership forms of environmental governance rather than legislative regulation and sanctions (Barry 2010, p. 125). This is reflected by the GI documents' emphasis on voluntary partnerships between stakeholders for the delivery of GI goals.

NW England's GI discourse can be linked to political ideologies of the UK governments of the 2000s and 2010s. It may be considered symptomatic of New Labour's Third Way politics, which included the promotion of several vague concepts which could appeal to a broad variety of actors, being open to individual interpretation (Cochrane 2012). The inclusive language and focus on win-win solutions of such concepts served to preclude opposition by appearing uncontroversial and commonsensical (Allmendinger and Haughton 2014, p. 36). New Labour also sought to strengthen cooperation between different sectors and planning scales as well as partnerships between public, private and community actors. These issues correspond to the delivery mechanisms advocated in the GI documents, which highlight the importance of partnerships. The heavy reliance on private and community actors to contribute towards GI goals is also in line with the Coalition's political ideology of the Big Society. According to this ideology, community groups and private actors should become more involved in the delivery of services while the interference of the public sector is reduced (Allmendinger and Haughton 2014, Connelly 2014).

### 7.2.3 The influence of formal and informal rules on GI policy-making and planning

The emergence and evolution of GI planning in NW England can be linked to a changing framework of formal and informal rules. While GI had initially been proposed on the national level as a mechanism to balance new housing development with environmental sustainability in the 2003 Sustainable Communities Plan, the concept was first enshrined in formal planning policy on the regional level (Gill *et al.* 2015, p. 125). The regional planning tier gained power under New Labour, creating a policy field with different rules than other planning tiers. Regional planning was heavily influenced by New Labour's political ideology, embracing principles of strategic spatial planning (e.g. partnership-based decision-making and intersectoral cooperation) as well as the broad, unifying storylines and concepts which New Labour frequently employed to bring stakeholders to the table and align competing interests. At the same time, the goals of regional planning were primarily concerned with economic growth and competitiveness. As a new policy arena, regional planning was also less concerned with traditional formal planning instruments (e.g. green belt planning) and more open to informal instruments. These features of England's regional planning are reflected in the GI concept. As a broad, fuzzy concept, it appears to offer win-win outcomes for environmental, social and economic challenges. This allowed various stakeholders to rally behind the concept. At the same time, the predominant focus on economic outcomes in regional planning has meant that key messages around GI deliberately emphasised its economic contribution rather than its ecological value. As regional planning was predominantly guided by the activities of the NWDA, the importance of GI was conveyed using mainstream economic concepts to link it to a storyline of growth and competitiveness.

The dismantling of the regional planning tier after the Conservative-Liberal Democrat coalition came to power in 2010 changed the framework of rules for GI planning: All regional strategies advocating GI planning in NW England and its sub-regional levels lost their statutory status. Some regional stakeholder groups on GI continue to operate as informal partnerships (e.g. NW GI Forum). While the RSS which encouraged local authorities to plan for GI was abolished, cities and city regions are now advised by the NPPF to develop GI strategies and frameworks. The RSS's GI policy specified that regional and city-regional plans, strategies, proposals and schemes should include measures to conserve and manage existing GI, create new GI and enhance its functionality, quality, connectivity and accessibility (GONW 2008, p. 94). Local authorities were called upon to ensure that a key aim of GI is the maintenance and improvement of biodiversity. While the NPPF also encourages local authorities to plan for the creation, protection, enhancement and management of GI, it is not linked to biodiversity goals. Indeed, the only further mention of GI in the NPPF relates to its use to decrease the climate change vulnerability of new development (DCLG 2012, p. 23). In accordance with GI's roots in the 2003 Sustainable Communities Plan, national policy has thus served to reinforce the link between GI and new development (Gill *et al.* 2015).

While the production of local GI plans was encouraged by NW England's RSS and the NPPF, these documents employ storylines which have gained popularity in European cities since the 1990s. By employing eco-branding or green city branding strategies, entrepreneurial cities have long sought to promote a green image in a bid to attract new residents, visitors and investors. Such strategies frame the environment primarily as a profit-generating factor and are associated with the selective uptake of environmental policies which contribute to economic growth goals (Beal 2015). Similar priorities are reflected in the analysed GI documents, which framed GI as an asset to advance economic success and international standing in the global competition between cities. It can thus be noted that the content of GI strategies and frameworks reflects storylines which have long been embedded in the informal rules of urban governance.

GI planning and implementation itself is also associated with distinct rules which differ markedly from those of formal planning instruments for the conservation and management of urban greenspaces, such

as the designation of green belts. While green belts represent formal designations in land use plans and serve to permanently protect areas from development, GI merely describes certain land use and land cover classes and is not in itself a commitment to their preservation (Thomas and Littlewood 2010). GI strategies recognise that GI networks are likely to evolve over time, as losses of GI are deemed acceptable where this serves overarching objectives or they are offset by gains in quality. As informal documents, the GI strategies and frameworks do not specify formal requirements but seek to encourage different actors to take voluntary action. The allocation of responsibilities and financial burden for the delivery of GI marks a clear departure from traditional greenspace management (Thomas and Littlewood 2010). GI documents call upon the private and civil sector to take on additional responsibilities for the creation and maintenance GI. This is linked to the severe budget cuts to NW England's public authorities over the past decade, which make the delivery of non-statutory services, such as the provision and management of greenspaces, more challenging. As a consequence, new funding mechanisms, such as using developer contributions, creating endowment funds through land sales or private sponsorship and volunteerism are discussed for the delivery of the GI strategies (Mell 2016). NW England's GI debate is closely linked to urban regeneration and new development is often described as an opportunity for GI delivery. Against this backdrop, it is perhaps unsurprising that developer contributions are described as a way to secure funding for GI measures in times of austerity (Payne and Barker 2015). In contrast to continental European planning traditions, negotiation processes between public authorities and developers are firmly rooted in UK planning and serve to determine conditions for development proposals and the height of developer's financial contribution to infrastructure expansion (Heurkens 2012, p. 231f). Employing the term 'infrastructure' in its name, GI can be interpreted as a bid to gain access to such processes and funds. The insistence that GI is equally important as grey infrastructure is thus linked to dwindling public budgets for greenspace management (Wright 2011). Similarly, the emphasis on partnership approaches for the delivery of GI is not simply ideological but also pragmatic: While mainstream public budgets are reduced, private and community actors bring new resources to the table and partnerships may be able to access national and European funding for innovative schemes.

## **7.3 Reflection of the research design and findings**

### **7.3.1 Reflection of the research design**

This section reflects on the limitations of this thesis. Some of these limitations stem from conceptual choices and were made deliberately; others were inevitable choices because of the restricted time available for a thesis.

While the PAA was selected as conceptual framework to guide this study, it is recognised that the approach is not without critics. In relation to this study, the most significant critique questions the implicit explanatory value of combining elements of existing approaches and theories. As described in Chapter 3, the PAA merges various approaches from sociology and political science to characterise both content and organisation of a policy field through its four dimensions (actors and coalitions, power and resources, policy discourses and rules of the game) (Arts *et al.* 2000, Arts and van Tatenhove 2004). However, the coherence of this eclectic combination has been disputed (for an overview of the critical debate on PAA see Santbergen 2013, pp. 59–61). Nevertheless, the PAA was perceived to offer the most promising framework for this thesis, as it allowed the case study to be illuminated from various perspectives. While more common approaches, such as policy network analysis and discourse analysis, were also considered, their singular focus was deemed less likely to yield new insights.

The PAA leaves open many questions about its operationalisation as no clear methods are prescribed for the analysis of the individual dimensions or the relations between them. This weakness is addressed by making the study's methodological choices explicit in Chapter 3.2 and by describing their implications

in this section. The selection of research methods for the PAA's dimensions was affected by some restrictions. The analysis of the dimensions of actors and coalitions, power and resources and rules of the game was based on a comprehensive literature and web research. Relying upon textual material rather than carrying out stakeholder interviews had certain disadvantages because the motives behind actors' engagement with GI could not be explored through targeted questions. However, interviews did not appear viable due to the retrospective aspects of the analysis; regional authorities have since been disbanded and suitable contact persons could often no longer be located. However, inferences about the actors' motives could be made through literature review and the evaluation of their fluctuating power and resources.

The geographical scope of the study was deliberately limited to a specific region rather than attempting to characterise GI planning in the entire UK. This choice was made because the GI concept was found to have gained traction in English regions before it entered the national policy agenda, allowing different regions to interpret and employ the concept distinctly. Within the scope of this study, it was impossible to capture the full variety of regional experiences. Some further issues were not investigated in this study due to restrictions in time and capacity: The dimension of actors and coalitions only considered those actors which were specific to the region. National actors, such as the government agency Natural England or environmental NGOs, were not investigated, although they have also been involved in NW England's adoption of the GI concept. It is also recognised that the rules and overarching discourses influencing GI planning are not limited to those on the national level; EU legislation, policies and funding mechanisms also have significant impacts on UK environmental and spatial planning practises. While the importance of actors, discourses and rules on other spatial levels is recognised, the limited scope of the study required these restrictions.

### **7.3.2 Reflection of the findings**

Despite the limitations set out in the previous section, the study's findings have practical value for policy makers and researchers. Based on the case study of NW England, light was shed on the links between the GI concept and its larger political context. The thesis therefore adds to the understanding of GI as a value-laden tool which is strategically employed by specific actors within a framework of specific formal and informal rules. By making the entanglement of GI with political ambitions and powerful discourses explicit, it can be understood more clearly how prevailing political–economic forces have shaped the content and organisation of the GI concept in NW England.

This thesis demonstrated that the emergence and evolution of the GI concept in NW England was shaped by the political context in which it was embedded. It must be recognized that on the whole, this context was hostile to environmental interests. The UK has no planning instrument for nature conservation which can be compared to the German system of landscape planning (Churchward *et al.* 2013, p. 46). While the profile of environmental issues in planning was strengthened to a certain degree throughout the 2000s, the 2010s have reversed many of these advances. Moreover, public authorities have faced significant budget cuts over the past decade. As a consequence, it has become increasingly difficult to justify expenditure on discretionary services, such as the provision and management of urban greenspaces. Taking the opportunities and constraints of this challenging context into account, the strengths, weaknesses, opportunities and threats of NW England's approach to GI planning will be outlined below.

On the basis of the new insights into the actor constellations, power dynamics, policy discourses and rules underpinning GI planning in NW England, the strengths and opportunities as well as the weaknesses and threats associated with the approach are outlined in the following subsections. Building on this evaluation, recommendations for policy and practise will be formulated in Section 7.4.1.

### 7.3.2.1 Strengths and opportunities of NW England's GI planning approach

GI has been discussed in NW England for over a decade and remained on the policy agenda in spite of several changes to the planning system. It has been embedded in statutory documents and informal guidance on all planning scales. Its persistence may be explained by the concept's flexibility and openness to different interpretations. The concept's strength lies in its ability to communicate the value of environmental measures in a way which appeals to a wide array of stakeholders. Actors promoting GI in NW England have taken a pragmatic stance and adapted the content and the language used to convey key messages to each audience (Gill *et al.* 2015). Rather than relying on ideological or ethical arguments to demand action on nature protection or greenspace management, key messages of GI are expressed using mainstream economic concepts and values which have more traction with politicians and stakeholders outside the environmental field. This has gone hand in glove with the development of a comprehensive evidence base, making the value of GI explicit in quantifiable and monetisable terms, which often carry more weight in political debates than qualitative arguments. GI planning is put forward as a commonsensical approach because it serves socio-economic as well as environmental goals. By introducing the GI concept, an additional economic (and social) argumentation for the protection of urban greenspaces has been developed which can mobilise additional actors to take action. By communicating the benefits of investing in GI in a way which appeals to the target audience, the concept can encourage the 'greening' of key sectors outside the environmental field, such as housing development. Additionally, new sources of funding for greenspace management may be tapped into by employing this reasoning, reducing pressure on the dwindling budgets of local authorities. By demonstrating GI's contribution to economic and social goals, access to new national or EU funding streams may be gained. Convincing private actors, such as developers and investors, to realise or sponsor GI interventions or encouraging communities to contribute in the upkeep of greenspaces means that public funds do not need to be stretched to cover all of these activities. This may allow public authorities to concentrate their financial means on the delivery of those projects which cannot be shouldered by private or community actors, or which are unattractive to them because they do not contribute to their bottom line.

The GI concept does not seek to challenge business as usual politics and economy or demand radical changes to current forms of neoliberal governance; instead, it highlights opportunities to provide GI where it complements socio-economic goals and generates no political conflict. GI planning in NW England can be considered a pragmatic mediator between environmental concerns and economic growth goals, rather than being a radical advocate of environmental protection. This makes the concept palatable to politicians and stakeholders beyond the environmental field. GI planning highlights opportunities to align goals of biodiversity protection with the prevailing political–economic forces. It can thus be interpreted as a strategy to achieve 'easy wins' by encouraging private and community actors to take voluntary action where it serves their interests.

### 7.3.2.2 Weaknesses and threats of NW England's GI planning approach

As described above, NW England's GI planning evolved in a relatively hostile political environment; It became increasingly difficult to promote environmental interests through formal planning mechanisms as a result of deregulation under the Coalition government, while public funds became more and more scarce in the aftermath of the 2008 economic crisis (Lord and Tewdwr-Jones 2012, Nadin and Stead 2014). Against this backdrop, it must be understood that the NW England's GI discourse sought to shift responsibilities and financial burdens from the public sector to private and community actors. While cities and city regions in NW England have published GI strategies and frameworks, these should not be interpreted to mark a radical shift in environmental policy. With no allocated resources or clear targets to implement them, they are more comfortable words and good intentions than fundamental change. As informal guidance documents, GI strategies and frameworks seek to persuade various stakeholders to take voluntary action rather than implementing strict regulation. The flexible character of the GI concept

and its mobilisation to appeal to a range of stakeholders beyond the environmental field allows it to be easily appropriated by private development to benefit their own bottom line. GI planning is promoted as a politically neutral, consensus-based form of planning in which economic, ecological and social improvements reinforce each other; However, the GI discourse frames environmental improvements primarily a means to boost the tax base, an attractive city image and land values. This can be understood as a bid to convince decision-makers and private actors to include environmental aspects without challenging their predominant concern with economic growth goals.

However, where environmental and economic goals cannot be aligned, profit-minded development is likely to subordinate environmental considerations in the current political climate. Decision-makers seeking to realise economic growth targets are likely to cherry-pick those GI measures which contribute most to economic growth goals rather than those with the greatest ecological value (Beal 2015). This could lead to a focus on the most prestigious locations, such as waterfront developments, rather than those which provide ecological stepping stones for wildlife. GI planning may also favour flagship projects over small-scale initiatives, which may exacerbate environmental justice throughout the city (Checker 2011). The potential of the GI concept to convince private actors to include environmental measures in their activities where it serves their own bottom line may lead to some 'easy wins'. However, private actors are unlikely to realise environmental measures with no apparent economic benefits or negative impacts on economic goals. Developers generally choose to invest in GI only where it contributes to the development's aesthetic appeal or where it reduces cost through direct energy savings (Payne and Barker 2015). Their focus on economic outcomes means that environmental improvements may be deliberately used to drive up property prices, which may result in the displacement of low-income residents. Other proposed delivery mechanisms such as private sponsorship or land sales may lead to an unequal distribution of greenspaces amongst neighbourhoods of different incomes or reduce their public accessibility (Walls 2014). While the GI discourse promises that everyone benefits from investment in GI, this may serve to obscure conflicts and remove any discussion about their unequal impact on local communities.

## **7.4 Recommendations**

### **7.4.1 Recommendations for policy and practise**

In light of the outlined strengths and opportunities as well as the weaknesses and risks associated with NW England's approach to GI planning, several recommendations can be made for other countries considering the GI approach.

This thesis demonstrated that GI planning in NW England must be seen in the context of the UK's long legacy of neoliberal policies as well as more recent deregulatory policies and budget cuts to public authorities. Like other concepts which have become popular in this context (most notably sustainable development), GI embraces an ecological modernisation approach which seeks to reconcile environmental and economic interests. Such approaches are at risk of placing disproportionate weight on conventional growth goals and unlikely to effectively safeguard environmental interests where they oppose central economic aspirations. Nevertheless, they may offer an opportunity to generate positive attention for environmental issues and raise the profile of environmental considerations in the decision-making process. This means that GI may serve as an entry point to embed environmental aspects in planning systems which are not yet equipped with instruments to effectively safeguard environmental protection. On the other hand, countries with well-established landscape planning systems, such as Germany, would be ill advised to throw traditional instruments overboard in favour of a GI approach modelled after NW England's experience. As informal instruments seeking to effect voluntary action, GI strategies have little real political weight. While a replacement of formal instruments with such informal tools would

weaken the standing of environmental interests in the planning process, other countries may still benefit from employing the GI concept as an add-on.

The GI concept has been successful in developing an additional argumentation for environmental measures by highlighting their economic and social benefits. The extensive evidence base supporting the quantifiable and monetisable value of GI developed in NW England may be used by actors in other contexts seeking to make a more persuasive case for the importance of urban greenspaces. This may serve environmentalists throughout Europe, as diminishing public budgets for the provision and upkeep of greenspaces are a phenomenon which extends far beyond the UK. While the GI concept may be employed to mobilise additional funds, environmentalist should take care not to lose sight of their fundamental values and aims. Additional financial resources generated by tapping into new funding streams or convincing private actors to realise or sponsor certain measures can reduce pressure on public budgets. They should not, however, be seen as a replacement for public intervention.

As describes above, an important weakness of NW England's GI approach is its reliance on private and community actors to deliver GI goals, which makes it vulnerable to the appropriation by private development goals. If public authorities are to realise environmental, social and economic improvements to the same extent, they will need to recognise the contributions of private actors as an opportunity to use public budgets to strengthen the environmental and social dimensions of the concept. Private actors may provide types of GI which provide economic benefits; public authorities should ensure that GI measures which are important ecologically but not economically viable do not fall between the cracks. Moreover, policy makers should recognise that despite the inclusive language associated with the GI concept, trade-offs between its economic, social and environmental benefits are often inevitable. Although aligning environmental improvements with economic goals (e.g. increasing the tax base and land values) makes GI attractive to politicians and private actors, it may also intentionally or unintentionally contribute to the displacement of low-income residents (Checker 2011). Where decision-makers encourage private actors to incorporate GI in housing development, they should also take action to safeguard affordable housing to secure socially responsible urban development.

Rather than viewing GI planning as a zero-sum game in which private actions replace public investment, public authorities should reinforce their commitment to the environmental and social dimensions of GI to ensure that outcomes on the ground do not fall short of the concept's ambitious promises. Predominantly seeking to inspire stakeholders to enter into voluntary environmental commitments, NW England's approach to GI planning should be considered a partial strategy or add-on to formal instruments for environmental protection. As a tool to communicate the value of greenspaces in relation to other land uses and secure funding for their creation and management, GI should be seen as an opportunity to place environmental concerns on the political agenda in planning systems or sectors not currently recognising their value. Where environmental interests are already safeguarded by formal instruments, GI should not be seen as a competing instrument or stand-alone strategy. Instead, the GI concept can be deliberately and strategically employed as a fruitful add-on when its strengths and limitations are taken into account by policy makers.

#### **7.4.2 Recommendations for further research**

This thesis concludes with some recommendations for further research on GI. This thesis offered a detailed case study of the GI concept's role in NW England and linked the concept's content and organisation to the context in which it emerged. By making the impact of powerful discourses as well as of formal and informal rules on the concept explicit, this thesis lays the groundwork for international comparisons. As further European countries take up the GI concept and integrate it into their planning systems, a comparison with NW England's experiences may offer valuable insights. In particular, this would allow for an assessment of how the concept may be adapted to fit into other regulatory and legislative

contexts with different opportunities and constraints. Particular attention should be devoted to the interplay of well-established instruments of nature protection and greenspace management (e.g. green belt planning, landscape planning) and the GI concept.

On the other hand, it may also be beneficial to extend the study to other regions in the UK. As the same formal and informal rules of planning and overarching political discourses largely apply throughout the UK, this would enable an evaluation of local authorities' leeway in interpreting the GI concept in distinct ways. Consequently, it could be determined whether different features of the concept are highlighted in other cities and city regions.

Last but not least, further research is needed to assess the impact of GI planning on practises on the ground. While this study described delivery and funding mechanisms which are currently considered in relation to the analysed GI strategies, it remains unclear if and how they are realised. Further studies need to be carried out to determine whether the GI concept has successfully encouraged public, private and community actors to cooperate in the delivery of goals set out in GI strategies. The type of actors involved and the nature of realised projects should be carefully scrutinised to determine their impact on environmental, economic and social indicators.

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## Appendices

The following appendices provide additional information on the content analysis of GI frameworks and strategies from Greater Manchester, Manchester, Liverpool City Region and Liverpool. The documents which were analysed are listed in Table 3.2 (p.18). Appendix A provides profiles for each city or city region, setting out the main storyline of the GI strategy or framework. The storylines were analysed by describing ontological, normative and strategic layers of the text (Table 3.3, p. 18). The profiles are set out in four tables:

|  |     |
|--|-----|
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| Table A. 2 Content analysis for Manchester's Green and Blue Infrastructure Strategy .....                | 104 |
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| Table A. 4 Content analysis for Liverpool's Green Infrastructure Strategy .....                          | 108 |

Appendix B provides the coded text segments on which the profiles in Appendix A are based. Text passages were coded with one or more categories using the data analysis software MAXQDA 11 (see Table 3.3 on p. 18). The original coded dataset can be found on the enclosed CD-ROM as a MAXQDA exchange file, which is accessible with all versions of the programme. Appendix B presents the exported text segments in separate tables for each city or city region.

|   |     |
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The profiles in Appendix A and the coded segments of Appendix B should be viewed in conjunction. The profiles set out the main messages for each layer of the discourse and include reference codes (e.g. GM 1-3) in the last column of the table which identify key text segments supporting the statements. The reference codes for each text segment are found in the first column of the tables in Appendix B, identifying relevant citations and their page number in the original document.

## Appendix A: Profiles on GI strategies and frameworks

Table A. 1 Content analysis for Greater Manchester's Green Infrastructure Framework

| Ontological layer                       |  | Ref. code |
|---|--|-----------|
| <i>Description of general situation</i> | GM is a major centre for employment, culture, retail and leisure. It provides over 1.25 million jobs, and significant growth is projected. Forecasts indicate GM may be protected from the worst effects of the recession given its reliance on private sector growth, although areas more reliant on the public sector or with a greater proportion of declining sectors (e.g. manufacturing) may take longer to return to pre-recession employment levels.   | GM 1      |
| <i>Key challenges</i>                   | <p>The Industrial Revolution and unsustainable growth in the 19<sup>th</sup> and 20<sup>th</sup> century have led to a decline in environmental and social quality. As a result, high quality open spaces and linkages, such as urban river ecosystems, have been lost or fragmented. Visual quality has declined and vulnerability to heat pollution and flooding increased. Many formerly degraded areas are now the focus of growth and redevelopment.</p> <p>The current economic output of GM is lower than expected. GM struggles with low levels of economic activity, high rates of worklessness and concentrations of deprivation, low economic productivity, a weak skills base and relatively low levels of enterprise. GM's challenges are to boost business productivity and ensure that all areas parts and people contribute to and benefit from economic growth.</p> <p>In light of limited public sector funding availability, the benefits of investment in GI and its role in supporting sustainable economic growth must be clearly articulated and the impact of investments must be maximized.</p> | GM 2-6    |
| <i>Context of strategy</i>              | <p>A significant amount of work has already been done in GM to provide an evidence base on GI and to promote GI investments. The original impetus for this work was the GI policy of the Regional Spatial Strategy. The GI Framework sets out the role of GI in delivering the aspirations of GM and aims to inform the delivery of the Greater Manchester Strategy, a strategy targeted at sustainable economic growth in the sub-region. The GI Framework argues that a strategy for growth in the sub-region requires a positive plan for GI.</p> <p>The GI Framework highlights the GI opportunities and the economic and environmental benefits of GI investment. It sets out the spatial and investment priorities for GI, which should be promoted as part of wider strategic investment proposals. Interventions which benefit GM as a whole need to be identified and prioritized due to the scarce funding resources.</p>  | GM 7-10   |
| <i>Definition of GI</i>                 | <p>"Green Infrastructure is a network of natural environmental components and green spaces that intersperse and connect our urban centres, our suburbs and our rural fringe. In simple terms it is our outdoor natural environment. In Greater Manchester, green infrastructure consists of:</p> <ul style="list-style-type: none"> <li>▪ open spaces (parks, woodlands, informal open spaces, nature reserves, lakes, historic sites and natural elements of built conservation areas, civic spaces and plazas, and accessible countryside)</li> <li>▪ linkages (river corridors and canals, pathways, cycle routes and greenways)</li> <li>▪ networks of "urban green" (the collective resource of private gardens, pocket parks, street trees, verges and green roofs)" (p. 3)</li> </ul>   | GM 11     |
| Normative layer                         |  |           |
| <i>Overall vision</i>                   | GM is committed to growth and has a vision of a vibrant modern low carbon economy, noted for quality of life and place. A healthy natural environment is a pre-requisite of growth and brings social and economic benefits - a strategy for growth therefore requires a plan for GI. Sustainable growth and management of ecosystems is seen as a key to combining population growth with securing an urban area noted for quality of life and quality of place.   | GM 12-15  |

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|   | The Greater Manchester Strategy vision is that 'By 2020, the Manchester city region will have pioneered a new model for sustainable economic growth based around a more connected, talented and greener city region where the prosperity secured is enjoyed by the many and not the few'.  |          |
| <i>Specific goals or objectives in relation to GI</i> | <p>Strategic objectives relating to GI:</p> <ul style="list-style-type: none"> <li>▪ "To shape the natural environment of Greater Manchester to fulfil growth support functions and, in doing so, to enhance its ecosystems and establish it as a sustainable world city.</li> <li>▪ To promote multi-functional use of land, except where restricted use is necessary to protect ecosystem services or irreplaceable qualities of the land.</li> <li>▪ To promote partnerships across social, economic and environmental sectors in the use of land. These partnerships should be established at governance and delivery levels.</li> <li>▪ To promote integration of GI into the strategies and work programmes of all organisations working in the growth, sustainability and well being sectors.</li> <li>▪ To promote individual and community involvement in multi-functional land management.</li> <li>▪ To promote and disseminate research into GI costs, levies, standards and benefits." (p. 20)</li> </ul>   | GM 16    |
| <b>Strategic layer</b>                                |  |          |
| <i>Potential of GI</i>                                | <p>GI can contribute to the GM vision because:</p> <ol style="list-style-type: none"> <li>1. It is an imperative of national and city-regional policy regarding sustainable development;</li> <li>2. It brings economic and health benefits;</li> <li>3. It contributes to climate change mitigation and adaptation;</li> <li>4. It can offset the negative environmental and social effects of development and reverse the legacy of poor environmental quality left from the 19th and 20th centuries;</li> <li>5. It meets the City's twin aspirations of quality of life and quality of place; and,</li> <li>6. It is consistent with the City-Region's intended "brand" as an ambitious, green and vibrant place." (p. 6)</li> </ol> <p>GI should:</p> <ul style="list-style-type: none"> <li>▪ "contribute to reversing the legacy of past decline and to creating a setting for growth;</li> <li>▪ ensure that GM's natural environment is resilient to meet the demands of economic and population growth;</li> <li>▪ use existing and future GI assets in mitigation / adaptation and management of climatic risks, in particular flood risk mitigation;</li> <li>▪ sub-regional priorities should respond to and inform local responses within GM communities, delivery of GI should be a mix of top down and bottom up activity."</li> </ul> | GM 17-20 |
| <i>Priorities (thematic and/or spatial)</i>           | <ol style="list-style-type: none"> <li>1. The strategic green infrastructure network: multifunctional areas of open land and water</li> <li>2. Economic centres and growth points: city and town centres, housing growth points, major investment sites and key transport corridors and gateways</li> <li>3. Regeneration priority areas: housing market renewal areas, areas of multiple deprivation, major brownfield regeneration sites, derelict, underused and neglected land, blighted transport corridors.</li> <li>4. Destination parks, landmarks and trails: Major parks, landmarks and vistas in urban and rural areas</li> <li>5. An active travel network: footpaths, cycleways, canal towpaths and bridleways</li> <li>6. Greening the urban environment: fine-grained urban GI, e.g. use of vegetation, urban treeplanting or food-growing programmes (particularly relevant in economic growth centres and regeneration priority areas)</li> </ol>   | GM 21-23 |

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|                         | 7. Community activism: Sustaining groups engaged in neighbourhood management, encouraging broader involvement in the outdoor environment through Friends of Parks groups, corporate responsibility programmes and making GI assets available to health and social care programmes   |       |
| <i>Responsibilities</i> | <p>"Delivery of the GI Action Plan will be through a combination of the following:</p> <ul style="list-style-type: none"> <li>▪ The planning system, to ensure development provides new and enhances existing green infrastructure where it is needed;</li> <li>▪ Strategic environmental initiatives such as the Red Rose and Pennine Edge Forests;</li> <li>▪ Greenspace and countryside management by local authorities' open space teams;</li> <li>▪ Environmental activity by providers and managers of other civic infrastructure such as roads, rivers, canals, flood defences, educational and health facilities;</li> <li>▪ Actions by community groups and corporate bodies and personal actions by individuals;</li> <li>▪ Community and neighbourhood planning." (p. 32)</li> </ul> | GM 24 |

**Table A. 2 Content analysis for Manchester's Green and Blue Infrastructure Strategy**

| <b>Ontological layer</b>                |  | <b>Ref. code</b> |
|---|--|------------------|
| <i>Description of general situation</i> | Manchester is the fastest growing city in the UK and an internationally recognised centre for finance, commerce, retail, culture and leisure. Manchester strives to combine economic growth with quality of place; as a liveable city, Manchester will be able to retain and attract people with the right talents and skills to support the economic base. Manchester's GI has been part of the city's success for several years. GI coverage is generally high (except for city centre) and the city's tree-cover is high compared to other UK cities. Most residents have access to large areas of natural or semi-natural greenspace within 720m of their homes. Manchester has invested in its natural assets over the last two decades: i.e. investment in river valleys as part of regeneration plans, park improvements, biodiversity and tree strategies, creation of greenspace in development projects and private activities.                                      | M 1-6            |
| <i>Key challenges</i>                   | Competition between cities for talent and investment. Over the course of the strategy's development local authority budgets have further reduced, driving the need for new funding and delivery models.  | M 7 & 10         |
| <i>Context of strategy</i>              | The Strategy was developed in recognition of GI's importance in creating successful and competitive cities, by attracting residents, a skilled workforce, visitors and business investment. Attractive GI is key to creating successful, healthy and resilient places where people want to live and work. The Strategy builds on existing policy commitments, and reframes action on GI in the context of the city's objectives for growth, public sector reform and the creation of attractive places where people will choose to live, work, visit and invest. The Council's commitment to produce a GI Strategy was set out in the Manchester Core Strategy 2012-27, according to which action on GI should be seen in the context of the city's plans for growth and development. The city's climate change action plan for the period 2013 to 2015, supported the development of a GI Strategy, in the context of action on climate change and environmental improvement. | M 8-13           |
| <i>Definition of GI</i>                 | <p>"Green infrastructure is the network of multi-functional green and blue space, urban and rural, which is capable of delivering a wide range of environmental and quality of life benefits for local communities (National Planning Policy Framework 2012)." (p. 16)</p> <ul style="list-style-type: none"> <li>▪ "Open Spaces - parks, woodlands, informal open spaces (including amenity grass areas, allotments), nature reserves, lakes and reservoirs, historic sites and natural elements of built conservation areas, civic spaces and accessible countryside, outdoor sports facilities (with natural surfaces)</li> <li>▪ Linkages - river valleys and canals, pathways, cycle routes, tram routes and railway lines – both used and disused</li> <li>▪ Networks of "urban green" – the collective resource of private gardens, pocket parks, street trees, verges, green roofs and green walls" (p. 16)</li> </ul>   | M 14-15          |

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| Normative layer                                       |   |         |
|---|---|---------|
| <i>Overall vision</i>                                 | <p>“By 2025 high quality, well maintained green and blue spaces will be an integral part of all neighbourhoods. The city’s communities will be living healthy, fulfilled lives, enjoying access to parks and greenspaces and safe green routes for walking, cycling and exercise throughout the city. Green and blue infrastructure will be supporting Manchester’s growth. Businesses will be investing in areas with a high environmental quality and attractive surroundings, enjoying access to a healthy, talented workforce. New funding models will be in place, ensuring progress achieved by 2025 can be sustained and provide the platform for ongoing investment in the years to follow.” (p. 11)</p>  | M 16    |
| <i>Specific goals or objectives in relation to GI</i> | <p>“The delivery of the strategy will mean;</p> <ul style="list-style-type: none"> <li>• Our river valleys are well managed, accessible and safe – providing a key recreational resource to residents.</li> <li>• Our canal network is rejuvenated as a key asset for the city centre and beyond.</li> <li>• Our parks and green spaces are attractive and accessible to residents.</li> <li>• Our networks of urban green connect more residents with urban nature and provide corridors and stepping stones for biodiversity</li> <li>• Our green spaces work harder, providing multiple social, economic and environmental benefits to the city.</li> <li>• Our growth is supported by green and blue infrastructure, as a key part of creating attractive, successful neighbourhoods.”(p. 5)</li> </ul> <p>“The Strategy also contains four objectives aimed at improving the quality, accessibility, understanding and awareness of the city’s green and blue spaces, developed in response to the strategic vision;</p> <p>Improve the quality and function of green and blue Infrastructure to maximise the benefits it delivers,</p> <p>Use appropriate GI as a key component of new development to help create successful neighbourhoods and support the city’s growth,</p> <p>Improve connectivity and accessibility to green and blue infrastructure within the city and beyond,</p> <p>Improve and promote a wider understanding and awareness of the benefits that green and blue infrastructure provides to residents, the economy and the local environment.” (p. 5)</p> | M 17-18 |
| Strategic layer                                       |   |         |
| <i>Potential of GI</i>                                | <p>In the increasing global competition between cities, GI is an important factor in attracting people, investment and employment. High quality GI is an important community asset and can provide recreational and sporting opportunities for residents. GI is a core component of Manchester’s plans to establish itself as an attractive world city. The quality of the city’s environment, and easy access to the parks and green spaces of Greater Manchester and beyond contribute to the quality of place. GI can help create an attractive setting for development and regeneration. All Manchester’s communities and sectors of the economy will benefit from ongoing investment in GI. Both permanent (e.g. major parks, river valleys) and temporary (sites awaiting development) areas of GI are important. A shifting mosaic of GI is to be expected in a dynamic city.</p>  | M 19-27 |
| <i>Priorities (thematic and/or spatial)</i>           | <ul style="list-style-type: none"> <li>▪ Existing GI: the best use must be made of existing GI, ensuring that it has a designated function and use, clear ownership and maintenance arrangements, and that it delivers benefits to the local community and businesses (River valleys, existing parks and green space, GI within large estates and land holdings, school grounds, trees and woodlands, GI projects for community food growing, private gardens, Sites of Biological Importance (SBIs), Local Nature Reserves (LNR), GI projects focusing on health and well-being)</li> <li>▪ New development: well designed and well maintained GI should be incorporated within new development (retrofit GI to existing buildings, city centre developments, temporary GI on sites awaiting development, Major Refurbishment, major employment developments, residential developments)</li> <li>▪ Connectivity and Accessibility: permeable, safe and attractive green routes should be provided between existing green infrastructure assets (river valleys and canals, green routes, GI on roads and verges)</li> </ul>   | M 28-31 |

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|                         | <ul style="list-style-type: none"> <li>Understanding and Awareness: continue to develop understanding and provide evidence on GI that will enable the development of new funding and delivery mechanisms. Wider communication, education and awareness raising.</li> </ul>   |         |
| <i>Responsibilities</i> | <p>Implementation is not the sole responsibility of the City Council. The implementation plan must bring together a wide range of public, private, academic and community stakeholders, including the Council, developers, larger, sometimes land holding bodies, as well as local community groups, 'friends of' groups, community groups, individuals, and others.</p> <p>In an environment of constrained public sector funding, new mechanisms and sources of funding will need to be developed. Innovative partnerships between public, private and community partners are needed for the ongoing management and maintenance of GI.</p> <p>The Council and planning system provide a framework to safeguard, enhance and create GI through development. City Council and developers should consider GI in area specific masterplans, development frameworks or pre-application discussions on development proposals. Developers should respond to local planning policies and incorporate high quality GI as part of development schemes.</p> <p>The engagement of environmentally-focused organisations is necessary for the delivery of the strategy (Red Rose Forest, Groundwork, RSPB, Forestry Commission, National Trust, Canals and Rivers Trust, Environment Agency). Friends of groups contribute to the management and upkeep of local parks. Other relevant stakeholders include registered housing providers, major land and estate holders, investment and development funds such as the Manchester Life Development Company, Clinical Commissioning Groups, Manchester Strategic Flood Risk Partnership. Manchester's communities, voluntary organisations and interest groups must form collaborative partnerships to develop external funding bids and deliver GI projects.</p> | M 32-38 |

**Table A. 3 Content analysis for Liverpool City Region and Warrington Green Infrastructure Framework**

| <b>Ontological layer</b>                |   | <b>Ref. code</b> |
|---|---|------------------|
| <i>Description of general situation</i> | <p>GI is pivotal to the successful and sustainable future of the region. It accounts for ca. 80% of the land area, 8,000 jobs and £350 million GVA across Liverpool City Region and Warrington, its wider economic value has been estimated at over £100bn per annum.</p> <p>Like other cities across the globe, Liverpool City Region recognizes that a GI approach can help deliver benefits, including attracting investment, safeguarding jobs and supporting growth, managing air and water quality and boosting health and wellbeing.</p>   | LCR 1-2          |
| <i>Key challenges</i>                   | In a time of financial restraint, all available assets must be used achieve the region's aspirations.   | LCR 3            |
| <i>Context of strategy</i>              | <p>A significant amount of work on GI planning has already been produced in NW England; Liverpool City Region and Warrington is already recognised globally for its GI planning and delivery. This framework builds on the methodology and ideas of the Liverpool GI Strategy.</p> <p>The GI framework was mandated by the Environment and Waste Board of the Liverpool City Region Board. Natural England and the Mersey Forest Partnership provided the funding and the Mersey Forest Team has prepared the documents.</p> <p>The framework provides an evidence base for the area's GI and helps inform decisions. It advocated GI as a critical infrastructure that can help tackle priority issues and identifies key actions. It informs investment decisions for a range of organisations to increase the impact of actions.</p> | LCR 4-10         |
| <i>Definition of GI</i>                 | <p>"Our life support system – the network of natural environmental components and green and blue spaces that lies within and around our towns and city, providing multiple social, economic and environmental benefits." (Technical document, p. 17)</p> <p>GI is:</p>  | LCR 11-12        |

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|   | <ul style="list-style-type: none"> <li>▪ “A system, the parts are interrelated and need to be planned and managed at appropriate scale and together.</li> <li>▪ Including both the vegetation and water elements of the natural environment.</li> <li>▪ Both urban and rural</li> <li>▪ Providing multiple benefits” (Technical document, p. 17)</li> </ul>  |           |
| <b>Normative layer</b>                                |  |           |
| <i>Overall vision</i>                                 | <ul style="list-style-type: none"> <li>▪ “As a low carbon economy, Liverpool City Region and Warrington maximises the benefits that are delivered through strategic GI planning to support sustainable economic growth</li> <li>▪ The natural environment is seen as a key health asset. People in the city region and Warrington state that the natural environment and their enjoyment of it is a major contributor to their wellbeing</li> <li>▪ The city region and Warrington has adapted well to climate change and supports others in making their change</li> <li>▪ Extensive, accessible open spaces, well linked by an extensive paths network, are cherished by local communities and offer opportunities for sustainable recreation and leisure and encourage visitors to enjoy the natural beauty of the area</li> <li>▪ The developing ecological framework is a precious resource, providing critical functions and safeguarding our biodiversity</li> <li>▪ An attractive and thriving rural economy is key to the success of the city region, providing valuable fuel and food resources as well as the setting for a high tech and knowledge based economy” (Action plan, p. 9)</li> </ul> | LCR 13    |
| <i>Specific goals or objectives in relation to GI</i> | <ul style="list-style-type: none"> <li>▪ “Setting the scene for growth</li> <li>▪ Supporting health and wellbeing</li> <li>▪ Adapting to climate change</li> <li>▪ Providing recreation, leisure and tourism</li> <li>▪ Enhancing the ecological framework</li> <li>▪ Developing the rural economy” (Action plan, p. 9)</li> </ul>   | LCR 14    |
| <b>Strategic layer</b>                                |  |           |
| <i>Potential of GI</i>                                | <ul style="list-style-type: none"> <li>▪ GI can support sustainable economic growth, increasing quality of place and life and attracting skills and capital.</li> <li>▪ GI provides physical and mental health benefits and helps reduce health inequalities.</li> <li>▪ GI attracts visitors and provides a playground for those who live, work and visit the city region.</li> <li>▪ The rural economy relies on GI and urban areas receive many GI benefits from rural areas. GI may generate new jobs and improve rural business productivity.</li> <li>▪ GI can help towns and cities adapt to projected climate change.</li> <li>▪ GI planning can be used to create ecological networks and improve connectivity</li> </ul>   | LCR 15-24 |
| <i>Priorities (thematic and/or spatial)</i>           | <ul style="list-style-type: none"> <li>▪ Overcome “pinch points” that undermine investment potential.</li> <li>▪ Use the GI Framework to shape the content and delivery of European Structural and rural Development Funds</li> <li>▪ Engage the non-environmental sector through the Local Nature Partnership, Local Enterprise Partnership and Community Environment Fund</li> <li>▪ reduce health inequalities, promote wellbeing and reduce the prevalence of poor mental and physical health</li> <li>▪ Use GI to adapt to climate change and create a low carbon economy.</li> </ul>   | LCR 25    |

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|                         | <ul style="list-style-type: none"> <li>▪ Build the GI Framework into city region and cross-boundary plans and strategies</li> <li>▪ Support the Mersey in becoming the cleanest and most ecologically rich river in Europe</li> <li>▪ GI tourism assets such as coastal areas, large parks, greenways</li> <li>▪ Use GI to “sell” the area as a great place to live, work and invest. Use it to bid for Green Capital</li> <li>▪ enhance the ecological framework through creation of more and bigger areas for nature that are well-managed and connected to form an ecological network</li> <li>▪ increase woodland cover in areas of greatest need</li> <li>▪ support active travel, walking and cycling for work, recreation and leisure</li> </ul>   |           |
| <i>Responsibilities</i> | <p>The GI Framework is part of the work plan of the Liverpool City Region Local Nature Partnership, Nature Connected. Nature Connected will also monitor the progress of the framework. It is proposed that Nature Connected and the Liverpool City Region Local Enterprise Partnership will provide the strategic support for the framework.</p> <p>For each of the framework’s activities, a lead organisation was identified which is a member of Nature Connected. This includes public, private and community sector actors (e.g. Environment Agency, local authorities, Wildlife Trusts, developers, landowners). The mechanisms through which the actions will be delivered vary widely (e.g. through local plans and sectoral strategies, Integrated Biodiversity Delivery Areas, planning conditions). Funding can take many forms, e.g. Payments for Ecosystem Services, EU Structural Funds, Community Infrastructure Levy, etc.</p> | LCR 26-29 |

**Table A. 4 Content analysis for Liverpool's Green Infrastructure Strategy**

| <b>Ontological layer</b>                |  | <b>Ref. code</b> |
|---|--|------------------|
| <i>Description of general situation</i> | Liverpool is a green city (62% of the city is GI) and should use this fact for marketing and competitive advantage. GI is an £8bn asset for the city that is often overlooked, but which can contribute significantly to the delivery of Liverpool's plans for sustainable growth. Liverpool is the fifth most visited city in the UK; the parks and open spaces are part of the culture of the city. Visitor numbers are expected to increase significantly.  | L1-2             |
| <i>Key challenges</i>                   | <ul style="list-style-type: none"> <li>▪ Employment rate below regional and national averages, areas of deprivation, over 460 ha of derelict and vacant land. Recession has led to reduction in employment, investment and growth.</li> <li>▪ Health deprivation and inequality. Low levels of GI occur in areas of the city with a higher incidence of physical and mental health problems and poor air quality.</li> <li>▪ GI is not equally distributed across the city. The City Centre and Inner Areas have low levels of GI. The most affluent areas of the city have 18% more GI than the most deprived.</li> <li>▪ Climate change may lead to drought, water shortages, increased temperatures, etc.</li> <li>▪ Habitat fragmentation, loss of habitats as a result of development, management of green spaces in the city restricts the suitability of the green space as a habitat.</li> </ul> | L3-9             |
| <i>Context of strategy</i>              | The strategy was developed to support the Core Strategy and also supports many of the city's other key strategies (e.g. Sustainable Community Strategy). Key strategic documents set out plans to promote Liverpool as a leading international city: “one of the best places to live, work, invest and enjoy life”. The GI Strategy  | L10-14           |

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|   | aims to support these aspirations and demonstrates how the GI approach can add value. The strategy seeks to identify specific actions that can assist the Liverpool health sector and Liverpool City Council improve health outcomes in the city, create a high quality environment for business and people, adapt to climate change and support biodiversity in the city.  |           |
| <i>Definition of GI</i>                               | “The city’s life support system – the network of natural environmental components and green and blue spaces that lies within and around Liverpool and provides multiple social, economic and environmental benefits. Green infrastructure planning is a holistic approach that seeks to identify the functions that are being provided by the parks, trees, gardens, waterways and grassland across the whole of the city. In particular, how these functions, such as public recreation, water interception and reducing air pollution, provide benefits to address local need and key issues for the city. Green infrastructure planning is not a traditional approach to planning the natural environment. For the first time, all areas of vegetation and water have been assessed collectively, treating them as a system, and in light of the plans for growth and a range of socio-economic considerations; revealing a critical infrastructure for the city.” (Executive Summary, p. 7)   | L 15-18   |
| <b>Normative layer</b>                                |   |           |
| <i>Overall vision</i>                                 | GI is planned to support a safe, more inclusive, environmentally sustainable and enjoyable city, to provide essential life support functions for a world class city, that is adapted to climate change and where healthy living is a natural choice. GI complements grey infrastructure, creating high quality new housing environments and regeneration. GI is used to gain competitive advantage and support prosperity and growth. The city is planned so that healthy options are a natural choice. Liverpool is well adapted to climate change. GI provides urban cooling and helps species adapt and move to new climate spaces. Action is taken to mitigate further climate change. GI is valued and planned to support sustainable development and provide multiple functions. There is a clear understanding of the value of GI amongst key decision makers and coordinated actions by delivery organisations.   | L 19-24   |
| <i>Specific goals or objectives in relation to GI</i> | <ul style="list-style-type: none"> <li>▪ “A sustainable city: Improving quality of place for projected housing growth and major regeneration programmes in order to attract investment, encouraging people to live and work in the city as well as increase the number of visitors to Liverpool. Increasing levels of productivity across the city. Developing a low carbon economy, including improving the opportunities for walking and cycling as part of everyday life in the city.</li> <li>▪ A city providing natural choices for health: Tackling health deprivation and health inequality across the city and in particular help tackle the issues of coronary heart disease, obesity, and diabetes to help to reduce numbers of premature deaths. Increase levels of physical activity. Reduce the high levels of poor mental health across the city. Reduce levels of air pollution.</li> <li>▪ A cool city: Use of green infrastructure to manage urban heat island effect particularly as it affects vulnerable communities. Managing water to provide irrigation for drought susceptible areas of green infrastructure to sustain their cooling function for the city. Incorporating SUDS into new developments to manage surface water. Retrofitting green infrastructure to adapt to high temperatures in the city centre, providing shade and passive cooling. The provision of corridors for species movement as climate changes.</li> <li>▪ A green and biodiverse city: Protecting core biodiversity areas. Creating expansion areas and wildlife corridors. Ensuring that green infrastructure delivery programmes contribute to the delivery of biodiversity action plan habitat targets.” (Executive summary, p. 8)</li> </ul> | L 25-26   |
| <b>Strategic layer</b>                                |   |           |
| <i>Potential of GI</i>                                | <p>Green infrastructure interventions will help tackle some of Liverpool’s most pressing problems:</p> <ul style="list-style-type: none"> <li>▪ Supporting sustainable housing growth and regeneration: e.g. by increasing quality of space, attracting investment and people, increasing growth, productivity and visitor numbers.</li> <li>▪ Improving health across the city: e.g. by increasing physical activity, improving air quality, improving mental health, reducing health inequality and improving social cohesion.</li> <li>▪ Tackling climate change: GI can contribute to mitigation and adaptation, e.g. by reducing temperatures through evaporative cooling and shading, helping other species adapt, managing flooding</li> </ul>   | L 27 - 53 |

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|---|---|-----------|
|   | <ul style="list-style-type: none"> <li>▪ Increasing biodiversity: sustainable management of habitats and providing connectivity allow species movement and habitat expansion.</li> </ul>  |           |
| <i>Priorities<br/>(thematic and/or<br/>spatial)</i> | <p>GI interventions should be focused at the City Centre and Inner Areas, in particular areas for housing growth and regeneration and major development projects (e.g. Super Port, Liverpool Knowledge Quarter, Alder Hey hospital). GI should be used to ensure that the key gateways and routes to the city are attractive. Actions should also target areas lacking good quality open spaces, areas where links to public realm can encourage walking and cycling, areas with high incidence of poor health and low levels of accessible GI, areas with communities vulnerable to climate change. Moreover, GI can benefit areas with potential lack in irrigation, areas with tree cover below targets or areas along watercourses. GI should be planned in a way that encourages air flow and improves ecological connectivity. Temporary use should be made of vacant or derelict land.</p>   | L 54 - 71 |
| <i>Responsibilities</i>                             | <p>GI policy must be supported by Liverpool City Council and included in the Local Development Framework and other strategic documents. GI policy should also be supported by Local Strategic Partnership and Liverpool Vision. A Liverpool GI Forum should be created which should be linked to the City Region Environment and Waste Board. The health sector should promote GI, including GI as a health service in health improvement programmes. Collaborative approaches are needed to implement the strategy. Delivery mechanisms include embedding GI in existing plans, programs and projects (e.g. Local Transport Plan, public realm strategies, Green Streets). The established sources of funding for these plans, programs and projects may be used to achieve GI goals (e.g. European Regional Development Fund, NWDA, Community grants, health sector). Section 106 policy should be used to develop a fund for GI implementation and include GI actions as part of the menu for Community Infrastructure Levy. The actions can be undertaken by a variety of actors (e.g. Liverpool Vision, Mersey Forest, GI Unit, Hospital Trusts, Local Council). Detailed GI plans for major developments should be prepared by project proposers, specific GI targets and a design guide should be applied. The city should use an agreed model to assess the value of GI in the city, policy and interventions. City planners should incorporate cross boundary issues identified in the GI Framework for the City Region. Community involvement should be encouraged to target scarce public resources on critical areas of GI across the city.</p> | L 72 - 82 |

## Appendix B: Coded segments for the content analysis of GI strategies and frameworks

**Table B. 1 Coded segments from Greater Manchester's Green Infrastructure Framework**

| Ref. code | Document     | Code                           | Citation   | Page |
|-----------|--------------|--------------------------------|--|------|
| GM 1      | GI Framework | Ontology\<br>General situation | Greater Manchester is already a major centre for employment, culture, retail and leisure. It provides over 1.25 million jobs, and this is predicted to reach almost 1.4 million by 2030. Forecasts from the Greater Manchester Forecasting Model indicate GM may be protected from some of the worst effects of the recession given its reliance on private sector growth, although recovery is expected to be uneven across GM with those areas more reliant on the public sector or with a greater proportion of declining sectors (e.g. manufacturing) taking longer to return to pre-recession employment levels. Notwithstanding the normal caveats around economic forecasts, GMFM identifies the potential for significant growth, stronger over the next 10 years with almost 130,000 jobs by 2020 with further increases, albeit at a slower rate up to 2030. 68% of forecast growth is concentrated in Manchester, Salford and Trafford. | 24   |
| GM 2      | GI Framework | Ontology\<br>Challenges        | Greater Manchester is the UK's second city in economic terms. However, despite its strengths the Manchester Independent Economic Review (MIER) concluded that Greater Manchester punches below its weight, with lower economic output than expected for a dynamic modern city of its size. A quarter of GM's output gap is due to low levels of economic activity, with high rates of worklessness constraining outputs and reinforcing concentrations of deprivation. The remaining three quarters is caused by low economic productivity, the result of a weak skills base, together with relatively low levels of enterprise in comparison with peer cities.  | 6    |
| GM 3      | GI Framework | Ontology\<br>Challenges        | Greater Manchester was at the forefront of the Industrial Revolution, but the negative environmental and social legacies of unsustainable growth through the 19th and 20th centuries has had a negative impact on GI, many GM communities are deprived of high quality open spaces and linkages, such as urban river ecosystems, have been fragmented. This in turn leaves many neighbourhoods subject to visual decline (as urban land use patterns have changed) and vulnerable to heat pollution and flooding. Unless the natural environment is protected and allowed to function effectively, growth, risks being unsustainable and short-lived. Many areas which have undergone decline in environmental and social quality are now the focus of aspirational growth and redevelopment.  | 4    |
| GM 4      | GI Framework | Ontology\<br>Challenges        | The twin challenges for GM are therefore to boost business productivity and at the same time ensure that all parts of Greater Manchester and its people contribute to and benefit from economic growth.  | 6    |
| GM 5      | GI Framework | Ontology\<br>Challenges        | Greater Manchester, like the rest of the country, is facing severe resource constraints, but is taking an innovative approach to maximising the resources available, and the impact that investment of those resources has against key objectives.   | 27   |
| GM 6      | GI Framework | Ontology\<br>Challenges        | In the current economic climate and with the challenges faced in relation to public sector funding availability, it is more important than ever that the benefits of investment in green infrastructure are clearly articulated within the context of the role of GI in supporting sustainable economic growth.  | 24   |

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| GM 7  | GI Framework | Ontology\ Context of strategy                               | This Framework document provides a positive review of GI opportunities and highlights the significant direct and indirect economic and environmental benefits of GI investment. A key aim of this Framework is to ensure that GI priorities can be incorporated into the emerging GMSF and be considered a priority for investment at the sub-regional scale. As AGMA is moving to a single, coherent investment strategy for GM, (which will focus spatial investment on those schemes that are most likely to increase economic and social benefits and allow maximum return on investments) inclusion of GI priorities in the GMSF will enable GI investment to be promoted as part of wider strategic investment proposals. It is in this context the GI Framework has been written; it recognises that a strategy for growth in the sub-region requires a positive plan for green infrastructure. The recommendations in this Framework should be read in conjunction with the evidence base from which it draws including the recently completed series of reports by TEP. | 31 |
| GM 8  | GI Framework | Ontology\ Context of strategy                               | The existing sub-regional policy framework (including the GMS and draft GMSF) sets out a framework for sustainable economic growth by providing a coherent set of priorities for delivery and investment. The value of a sub-regional approach is that it informs how we can use scarce funding resources to prioritise those interventions that demonstrably benefit GM as a whole. The newly formed Local Enterprise Partnership (LEP) and the Combined Authority (CA) will be responsible for strategic direction at the sub-regional level post April 2011. It is recognised however that each of the 10 Local Authorities in GM are responsible for delivering sustainable growth throughout GM and for driving forward local priorities. To reflect the need for local delivery of GI an Action Plan will follow this Framework document. The Action Plan that will follow will build on the existing evidence base and the many established successful environmental initiatives in Greater Manchester to focus on delivery.  | 3  |
| GM 9  | GI Framework | Ontology\ Context of strategy                               | This GI Framework reviews the evidence base produced to date regarding GI priorities at a GM level. Green infrastructure is realised at many different levels; project, neighbourhood, town/city, city-region and strategic. A significant amount of detailed analysis of GM requirements, from the neighbourhood level up to the strategic level, has been undertaken to date including that produced by TEP and 4NW. The original impetus for building the evidence base relating to GI was the Regional Spatial Strategy (RSS) GI Policy EM3 and a desire to work out how this might be applied in Greater Manchester. The purpose of the work done to date has been to evidence, explain and position the role of green infrastructure in delivering the aspirations of the City Region.   | 3  |
| GM 10 | GI Framework | Ontology\ Context of strategy                               | A significant amount of work has been done in Greater Manchester to both promote Green Infrastructure (GI) investment and to provide an evidence base to inform that investment. This report aims to summarise the GI priorities (assets, needs and opportunities) at a strategic level with a focus on spatial and investment priorities. At a sub-regional level it is intended that this Framework is used as one of a series of key documents informing the preferred policy approach to delivering the Greater Manchester Strategy (GMS). The report provides a clear set of priority GI themes; the Framework offers a spatial representation of these themes to be reflected at the sub-regional level through the Greater Manchester Spatial Framework (GMSF).   | 3  |
| GM 11 | GI Framework | Ontology\ Definition GI\ Definition of Green Infrastructure | Green Infrastructure is a network of natural environmental components and green spaces that intersperse and connect our urban centres, our suburbs and our rural fringe. In simple terms it is our outdoor natural environment. In Greater Manchester, green infrastructure consists of: <ul style="list-style-type: none"> <li>▪ open spaces (parks, woodlands, informal open spaces, nature reserves, lakes, historic sites and natural elements of built conser</li> <li>▪ vation areas, civic spaces and plazas, and accessible countryside)</li> <li>▪ linkages (river corridors and canals, pathways, cycle routes and greenways)</li> <li>▪ networks of “urban green” (the collective resource of private gardens, pocket parks, street trees, verges and green roofs)</li> </ul>   | 3  |
| GM 12 | GI Framework | Normative\ Vision   | A strategy for growth therefore requires a positive plan for green infrastructure.   | 5  |
| GM 13 | GI Framework | Normative\ Vision   | Greater Manchester is a city region committed to growth. It aims to be a modern low carbon economy, noted for quality of life and place. The Greater Manchester Strategy (GMS) vision is that ‘By 2020, the Manchester city region will have pioneered a new model for sustainable economic growth based around a more connected, talented and greener city region where the prosperity secured is enjoyed by the many and not the few’.   | 5  |
| GM 14 | GI Framework | Normative\ Vision   | Greater Manchester is committed to growth – and has a vision of a vibrant modern economy, with communities enjoying a high quality of life. A healthy natural environment is a pre-requisite of growth; the social benefits (improved health and well-being) and economic benefits that high environmental quality brings are well-documented.   | 5  |

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| GM 15 | GI Framework | Normative\ Vision            | Greater Manchester is working towards a 'third generation' GI strategy; where the city region grows sustainably and manages the ecosystems on which it depends. Sustainable growth will see a city region with an increasing and prospering population in combination with an urban area noted for quality of life and quality of place.   | 4  |
| GM 16 | GI Framework | Normative\ Specific goals    | <ul style="list-style-type: none"> <li>▪ To shape the natural environment of Greater Manchester to fulfil growth support functions and, in doing so, to enhance its ecosystems and establish it as a sustainable world city.</li> <li>▪ To promote multi-functional use of land, except where restricted use is necessary to protect ecosystem services or irreplaceable qualities of the land.</li> <li>▪ To promote partnerships across social, economic and environmental sectors in the use of land. These partnerships should be established at governance and delivery levels.</li> <li>▪ To promote integration of GI into the strategies and work programmes of all organisations working in the growth, sustainability and well being sectors.</li> <li>▪ To promote individual and community involvement in multi-functional land management.</li> <li>▪ To promote and disseminate research into GI costs, levies, standards and benefits.</li> </ul> | 20 |
| GM 17 | GI Framework | Strategical\ Potential of GI | <p>A positive approach to green infrastructure in the city region is essential if growth is to be sustained. There are six primary reasons:</p> <ol style="list-style-type: none"> <li>1. It is an imperative of national and city-regional policy regarding sustainable development;</li> <li>2. It brings economic and health benefits;</li> <li>3. It contributes to climate change mitigation and adaptation;</li> <li>4. It can offset the negative environmental and social effects of development and reverse the legacy of poor environmental quality left from the 19th and 20th centuries;</li> <li>5. It meets the City's twin aspirations of quality of life and quality of place; and,</li> <li>6. It is consistent with the City-Region's intended "brand" as an ambitious, green and vibrant place.</li> </ol>  | 6  |
| GM 18 | GI Framework | Strategical\ Potential of GI | Although there is no statutory duty explicitly referring to green infrastructure it is evident that planning for GI helps Government, its agencies, Local Government and other statutorily-constituted public authorities meet their obligations in respect of sustainability.   | 5  |
| GM 19 | GI Framework | Strategical\ Potential of GI | It is imperative that all stakeholders involved in the City Region's growth consider, plan and deliver green infrastructure as without it, growth will be short-lived, may be of poor design quality, and will not be socially or environmentally sustainable. Even more importantly, a green infrastructure approach will make the city more attractive, more vibrant, more prosperous and less vulnerable to negative effects of growth and climate change.  | 6  |
| GM 20 | GI Framework | Strategical\ Potential of GI | <p>Within this context the challenge for Green Infrastructure is therefore to:</p> <ul style="list-style-type: none"> <li>▪ contribute to reversing the legacy of past decline and to creating a setting for growth;</li> <li>▪ ensure that GM's natural environment is resilient to meet the demands of economic and population growth;</li> <li>▪ use existing and future GI assets in mitigation / adaptation and management of climatic risks in particular flood risk mitigation;</li> <li>▪ sub-regional priorities should respond to and inform local responses within GM communities ,delivery of GI should be a mix of top down and bottom up activity.</li> </ul>  | 4  |

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|-------|--------------|-------------------------------|---|----|
| GM 21 | GI Framework | Strategic<br>Priority areas   | <ol style="list-style-type: none"> <li>1. The strategic green infrastructure network;</li> <li>2. Economic centres and growth points;</li> <li>3. Regeneration priority areas;</li> <li>4. Destination parks, landmarks and trails;</li> <li>5. An active travel network;</li> <li>6. Greening the urban environment;</li> <li>7. Community activism.</li> </ol>  | 28 |
| GM 22 | GI Framework | Strategic<br>Priority areas   | <ol style="list-style-type: none"> <li>1. The strategic green infrastructure network: these multifunctional areas of open land and water are the city's green lungs, providing health, access, amenity, biodiversity and tourism. In terms of the economy, these areas sustain jobs in the visitor and natural economies.</li> <li>2. Economic centres and growth points: this includes city and town centres, housing growth points, major investment sites and key transport corridors and gateways. Characterised by a highly urbanised environment, the quality of public realm is vital to economic success and image.</li> <li>3. Regeneration priority areas: this includes housing market renewal areas, areas of multiple deprivation, major brownfield regeneration sites, DUN land, blighted transport corridors, often characterised by pollution and low environmental quality. GI can help remediate brownfield and create a better setting for new development, building investor confidence.</li> <li>4. Destination parks, landmarks and trails: Major parks, as well as landmarks and vistas in urban and rural areas, are important GI destinations, as well as being valuable in creating a sense of place, civic pride, stimulating healthy lifestyles and sustaining jobs in the tourism, leisure and recreation industries.</li> </ol>   | 20 |
| GM 23 | GI Framework | Strategic<br>Priority areas   | <ol style="list-style-type: none"> <li>5. An active travel network: footpaths, cycleways, canal towpaths and bridleways which link GI assets to each other and to residential and employment areas provide a means of encouraging sustainable transport, healthier lifestyles, greener commuting and general enjoyment of open spaces.</li> <li>6. Greening the urban environment: A strategy for "fine-grained" GI, this includes maintenance of the existing fine-grained green infrastructure and measures to ensure new development maximises opportunities such as the use of vegetation, urban treeplanting or food-growing programmes to reduce the urban heat island effect, to enhance local environmental quality and to contribute to a more beautiful, walkable and healthier environment. Greening the urban environment is particularly relevant in the economic growth centres and regeneration priority areas.</li> <li>7. Community activism: Sustaining the existing groups engaged in neighbourhood management, providing them with resources, access to information, networking and best-practice. Encouraging broader involvement in the outdoor environment through Friends of Parks groups, corporate responsibility programmes and making GI assets available to health and social care programmes (using "Total Place" model where public services are joined up in a neighbourhood). This is particularly relevant for communities in and near the main GI assets and also important in regeneration priority areas.</li> </ol> | 21 |
| GM 24 | GI Framework | Strategic<br>Responsibilities | <ul style="list-style-type: none"> <li>▪ Delivery of the GI Action Plan will be through a combination of the following:</li> <li>▪ The planning system, to ensure development provides new and enhances existing green infrastructure where it is needed;</li> <li>▪ Strategic environmental initiatives such as the Red Rose and Pennine Edge Forests;</li> <li>▪ Greenspace and countryside management by local authorities' open space teams;</li> <li>▪ Environmental activity by providers and managers of other civic infrastructure such as roads, rivers, canals, flood defences, educational and health facilities;</li> <li>▪ Actions by community groups and corporate bodies and personal actions by individuals;</li> <li>▪ Community and neighbourhood planning.</li> </ul>   | 32 |

**Table B. 2 Coded segments from Manchester's Green and Blue Infrastructure Strategy**

| Ref. code | Document            | Code  | Citation   | Page |
|-----------|---------------------|---|--|------|
| M 1       | GI Strategy (draft) | Ontology\<br>General situation                                | Manchester has a rich legacy of parks and waterways. Many of these assets have seen recent investment designed to bring them up to the standards required in the 21st century. This approach has been part of the Manchester story over the last two decades. Investment in the city's river valleys as part of neighbourhood regeneration plans, delivery of improvements to parks, biodiversity and tree strategies, creation of new areas of greenspace as part of development projects and activity by the city's communities and third sector partners, have all been part of ongoing efforts to improve the city's green and blue spaces.  | 4    |
| M 2       | GI Strategy (draft) | Ontology\<br>General situation                                | Manchester's green infrastructure (GI) has been part of the city's success for a number of years. Five river valleys, three canals, over 160 parks, street trees, woodland, private gardens, and other areas of natural environment are familiar and well-used parts of the city's landscape. It is set within a wider landscape, that of the Greater Manchester city-region and beyond to the Pennines, Peak District and Cheshire Plains, and within easy reach of additional areas in the Lake District and Snowdonia National Parks.   | 11   |
| M 3       | GI Strategy (draft) | Ontology\<br>General situation                                | 20% of the city is classed as being tree-covered, compared to a national average of 9% in towns and cities.  | 18   |
| M 4       | GI Strategy (draft) | Ontology\<br>General situation                                | Manchester is at the core of the Greater Manchester city-region and is the fastest growing city in the UK. With a population of over 500,000 residents, as an internationally recognised centre for finance, commerce, retail, culture and leisure, and one of the largest student populations in Europe, it is the principal economic driver of the north of England. For Manchester to achieve its fullest potential, economic growth must be combined with a quality of place that creates a liveable city; one that enables the retention and attraction of people with the right talents and skills to support the economic base.   | 14   |
| M 5       | GI Strategy (draft) | Ontology\<br>General situation                                | Manchester's green and blue spaces cover 58% of the city. Outside of the city centre and central Manchester green infrastructure coverage is generally high, made up of a combination of assets in public ownership and privately owned spaces, particularly residential gardens in south Manchester and Wythenshawe.  | 18   |
| M 6       | GI Strategy (draft) | Ontology\<br>General situation                                | Most residents have access to an area of natural or semi-natural greenspace over two hectares in size (approximately the size of three football pitches) within 720m of their homes, the standard set in the Manchester Core Strategy.   | 18   |
| M 7       | GI Strategy (draft) | Ontology\<br>Challenges                                       | The landscape for investing in GI has continued to change substantially over the course of the strategy's development. Local authority budgets have further reduced, driving the need for new funding and delivery models. Understanding of the socio-economic value of GI has continued to develop, underpinned by new local and international research and policy developments. And Government's recognition of the potential and role of cities in the UK has increased exponentially, giving rise to city devolution and the Greater Manchester Devolution Agreement.  | 12   |
| M 8       | GI Strategy (draft) | Ontology\<br>context of strategy                              | The draft Manchester Green and Blue Infrastructure Strategy has been developed in recognition of the importance of the city's green and blue assets in creating a successful and competitive city in which increasing numbers of people choose to live, work, invest and spend their leisure time.   | 1    |
| M 9       | GI Strategy (draft) | Ontology\<br>context of strategy                              | High quality green and blue infrastructure (GI) is an essential part of successful, liveable cities. The green spaces and waterways in our neighbourhoods attract residents and families, creates the setting for businesses to invest, with access to the brightest and best employees, and it is part of the package that draws in visitors from the surrounding area and around the world. Successful cities are those that understand the importance of GI, including it as part of their plans for growth and development. Portland, Toronto, Copenhagen, and Berlin are among these cities, integrating high quality, well-maintained GI as part of wider plans for residential growth, improving health and well-being, attracting businesses and increasing tourism. | 12   |
| M 10      | GI Strategy (draft) | Ontology\<br>context of strategy &<br>Ontology\<br>Challenges | High quality parks, green spaces and waterways are vitally important features of successful cities. In today's increasingly knowledge-based and competitive global economy, in which investors and individuals have a choice as to where to invest, live and work, those cities that are able to offer high quality living and working environments will have an increasing advantage. In short, ensuring that the city has attractive green and blue infrastructure (GI) is key to creating successful, healthy and resilient places where people want to live and work.  | 4    |

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| M 11 | GI Strategy (draft) | Ontology\<br>context of strategy | The draft Green and Blue Infrastructure Strategy that is the subject of this report does not, therefore, mark the start of the process of investing in Manchester's green and blue assets. Rather it builds on the progress achieved to date, draws together existing policy commitments, and reframes the city's green and blue infrastructure in the context of the city's wider plans for growth over the coming decade.  | 4  |
| M 12 | GI Strategy (draft) | Ontology\<br>context of strategy | The Council's commitment to produce a Manchester Green and Blue Infrastructure Strategy was set out in the Manchester Core Strategy 2012-27, the document that provides the long term strategic policies for the city's future development. The document makes it clear that action on GI should be seen in the context of the city's plans for growth and development.  | 4  |
| M 13 | GI Strategy (draft) | Ontology\<br>context of strategy | In 2013 the city's climate change action plan, Manchester: a Certain Future (MACF), was refreshed by the MACF Steering Group and stakeholders from across the city. The refreshed plan, for the period 2013 to 2015, gave support for the development of a Manchester GI Strategy, setting this activity in the context of a collective commitment by the city and its stakeholders to take action on climate change and environmental improvement.  | 4  |
| M 14 | GI Strategy (draft) | Ontology\<br>Definition GI       | "Green infrastructure is the network of multi-functional green and blue space, urban and rural, which is capable of delivering a wide range of environmental and quality of life benefits for local communities (National Planning Policy Framework 2012)."  | 16 |
| M 15 | GI Strategy (draft) | Ontology\<br>Definition GI       | <ul style="list-style-type: none"> <li>▪ Open Spaces - parks, woodlands, informal open spaces (including amenity grass areas, allotments), nature reserves, lakes and reservoirs, historic sites and natural elements of built conservation areas,</li> <li>▪ civic spaces and accessible countryside, outdoor sports facilities (with natural surfaces)</li> <li>▪ Linkages - river valleys and canals, pathways, cycle routes, tram routes and railway lines – both used and disused</li> <li>▪ Networks of "urban green" – the collective resource of private gardens, pocket parks, street trees, verges, green roofs and green walls</li> </ul>   | 16 |
| M 16 | GI Strategy (draft) | Normative\<br>Vision             | By 2025 high quality, well maintained green and blue spaces will be an integral part of all neighbourhoods. The city's communities will be living healthy, fulfilled lives, enjoying access to parks and greenspaces and safe green routes for walking, cycling and exercise throughout the city. Green and blue infrastructure will be supporting Manchester's growth. Businesses will be investing in areas with a high environmental quality and attractive surroundings, enjoying access to a healthy, talented workforce. New funding models will be in place, ensuring progress achieved by 2025 can be sustained and provide the platform for ongoing investment in the years to follow.  | 11 |
| M 17 | GI Strategy (draft) | Normative\<br>Specific goals     | <ul style="list-style-type: none"> <li>▪ Our river valleys are well managed, accessible and safe – providing a key recreational resource to residents.</li> <li>▪ Our canal network is rejuvenated as a key asset for the city centre and beyond.</li> <li>▪ Our parks and green spaces are attractive and accessible to residents.</li> <li>▪ Our networks of urban green connect more residents with urban nature and provide corridors and stepping stones for biodiversity</li> <li>▪ Our green spaces work harder, providing multiple social, economic and environmental benefits to the city.</li> <li>▪ Our growth is supported by green and blue infrastructure, as a key part of creating attractive, successful neighbourhoods.</li> </ul>   | 5  |
| M 18 | GI Strategy (draft) | Normative\<br>Specific goals     | The Strategy also contains four objectives aimed at improving the quality, accessibility, understanding and awareness of the city's green and blue spaces, developed in response to the strategic vision; <ol style="list-style-type: none"> <li>i. Improve the quality and function of green and blue Infrastructure to maximise the benefits it delivers,</li> <li>ii. Use appropriate GI as a key component of new development to help create successful neighbourhoods and support the city's growth,</li> <li>iii. Improve connectivity and accessibility to green and blue infrastructure within the city and beyond,</li> <li>iv. Improve and promote a wider understanding and awareness of the benefits that green and blue infrastructure provides to residents, the economy and the local environment.</li> </ol> | 5  |
| M 19 | GI Strategy (draft) | Strategical\<br>Potential of GI  | The ability for GI to help create an attractive setting for development and regeneration is a key priority for Manchester.   | 20 |
| M 20 | GI Strategy (draft) | Strategical\<br>Potential of GI  | Green and blue infrastructure will be a core component of Manchester's plans to 2025. It is as important as other types of infrastructure; energy, transport, water, waste, telecommunications and others. Residents, visitors, businesses and workers will be drawn to Manchester by a range of factors, schools and universities, employment opportunities, arts and culture, health standards, the quality of the city's environment, and easy access to the parks and green spaces of Greater Manchester and beyond, all combining to offer residents a lifestyle that is uniquely Manchester, and places us among the top flight of world cities.   | 10 |

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|------|---------------------|-----------------------------|--|----|
| M 21 | GI Strategy (draft) | Strategical\Potential of GI | High quality green and blue infrastructure (GI) is an essential part of successful, liveable cities. The green spaces and waterways in our neighbourhoods attract residents and families, creates the setting for businesses to invest, with access to the brightest and best employees, and it is part of the package that draws in visitors from the surrounding area and around the world. Successful cities are those that understand the importance of GI, including it as part of their plans for growth and development. Portland, Toronto, Copenhagen, and Berlin are among these cities, integrating high quality, well-maintained GI as part of wider plans for residential growth, improving health and wellbeing, attracting businesses and increasing tourism.  | 12 |
| M 22 | GI Strategy (draft) | Strategical\Potential of GI | This vision recognises that all Manchester's communities and sectors of the economy will benefit from ongoing investment in GI.  | 11 |
| M 23 | GI Strategy (draft) | Strategical\Potential of GI | In today's increasingly competitive world the existence of high quality parks, green spaces and waterways is an increasingly important factor in attracting people, investment and employment to the city.   | 2  |
| M 24 | GI Strategy (draft) | Strategical\Potential of GI | High quality green spaces and waterways are an important feature of a successful city; helping to attract investment and jobs and providing recreational and sporting opportunities for residents.   | 2  |
| M 25 | GI Strategy (draft) | Strategical\Potential of GI | The existence of high quality green spaces and waterways are important community assets. One of the aims of the strategy is to encourage community involvement in the improvement and management of green and blue assets.   | 2  |
| M 26 | GI Strategy (draft) | Strategical\Potential of GI | Existence of high quality green and blue infrastructure is an important factor that people consider in deciding whether to live in or invest in an area. The strategy provides a framework to encourage future investment in and management of the city's green and blue assets.   | 2  |
| M 27 | GI Strategy (draft) | Strategical\Potential of GI | In looking at Manchester's spread and type of GI, it is important to always understand the city context. There are, and will be into the future, large areas of well-established green and blue spaces, focused particularly in the river valleys and in the major parks. In addition to these there are areas of GI that are temporary and take the form of sites awaiting development. In combination with new areas that become available over time, these sites provide a shifting mosaic of GI that is to be expected in a dynamic, ever-changing city. Ensuring that these sites can be used, even on a temporary basis, is important in making best use of the city's land assets. Temporary, or 'meanwhile', greening has already started to become part of the city's process of change, with this strategy helping to provide further impetus and direction to scale up this activity.   | 16 |
| M 28 | GI Strategy (draft) | Strategical\Priority areas  | Objective 1: Existing GI<br>As Manchester, and cities around the world, continue to grow, making best use of limited land resources is critical to ensuring that the needs of the local population, economy and environment can be met.<br>An estimated 58% of Manchester is made up of GI, varying in its quality and functionality, and the benefits it provides to the city. Focusing on making best use of existing GI is therefore a priority, ensuring that it has a designated function and use, clear ownership and maintenance arrangements, and that it delivers tangible and relevant benefits to the local community and businesses. In some cases this may mean a net reduction in the quantity of existing GI in a specific location, in order that resources can be focused on improving the quality and functionality of the retained area, delivering more net benefits to the surrounding communities as a result.<br>Improvements to the city's existing GI are important at all scales, and can be delivered by a range of stakeholders, from the City Council and major landholders, through to individual residents and community groups. [Figure 5, p. 24]  | 22 |
| M 29 | GI Strategy (draft) | Strategical\Priority areas  | Objective 2: New Development<br>As set out above, Manchester is a growing City, with plans for significant growth and development over the coming decade. The key focus for new housing development will be within the city centre, and areas to the east and north of the city centre. Employment will be focused on the city centre, including the Corridor area, Central Park, Eastlands and Airport City. Retail development will be concentrated within the city centre and supplemented by that in district centres across the city.<br>High quality, green and open space that is appropriate to its location, well designed and well maintained will be an important and integral part of creating successful developments and supporting the city's growth. The strategy is intended to provide initial guidance on how developers can achieve this. It recognises that different approaches will be required for different types of development and that different solutions, appropriate to the location, will be needed on each scheme.<br>By considering GI from the beginning of the design process developers will be able to understand the surrounding landscape, opportunities to enhance and link to it, and the types of green and open space that could be incorporated within and add value to the development itself. [Figure 6, p. 26] | 22 |

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| M 30 | GI Strategy (draft) | Strategical\ Priority areas   | <p>Objective 3: Connectivity and Accessibility</p> <p>Green linkages across the city provide an effective means to improve access to green Space in Manchester, specifically in areas where the existing urban form does not allow new large areas to be easily created.</p> <p>Providing permeable, safe and attractive green routes between existing green infrastructure assets can be effective in providing ease of access and a means of extending off-road is potential for both extending the provision of green routes, and improving the quality of existing routes to improve access to Manchester's green spaces and using them to increase GI levels in their own right.</p> <p>The strategy seeks to ensure that all communities can have access to high quality GI, both within their local area, and out to other areas of the city and wider conurbation. This objective should be read with sustainable transport in mind, both in terms of existing provision but also in terms of increased capacity through new and improved cycle routes, bus routes and further expansion of the Metrolink. [Figure 7, p. 28]</p>   | 23 |
| M 31 | GI Strategy (draft) | Strategical\ Priority areas   | <p>Objective 4: Understanding and Awareness</p> <p>This strategy is built on a good initial Understanding of the important role that GI has to play in supporting the city's objectives for growth and environmental improvement. Further work will allow us to continue to develop this understanding and provide evidence that will enable the development of new funding and delivery mechanisms. The local universities are well-placed to lead on this activity, hosting a number of academics with expertise in this area. As set out above, all stakeholders in the city have an important role to play contributing to the city's GI in and making best use of it for health, recreation, employment and other outcomes. Wider communication, education and awareness raising covers the second key area of activity under this objective. This is a priority for M.A.C.F . our stakeholder lead climate change action group.</p>  | 23 |
| M 32 | GI Strategy (draft) | Strategical\ Responsibilities | <p>Continued adoption of a collaborative approach will be important to underpin the delivery of this strategy, particularly in an environment of constrained public sector funding. Since 2010 the MACF Steering Group have been responsible for championing and overseeing the delivery of the city's climate change action plan, including engagement of a diverse range of partners and stakeholders to play their part. The MACF Steering Group are therefore well-placed to play a similar role in relation to the Green and Blue Infrastructure Strategy, particularly through their Green and Blue Infrastructure Group.</p>  | 6  |
| M 33 | GI Strategy (draft) | Strategical\ Responsibilities | <p>Groups, businesses, schools, universities, individuals, and others will come together through the MACF network of stakeholders to continually update the implementation plan, maintain momentum for its delivery, and provide updates on their activities. The City Council will be an active part of this network, providing support and influence to bring in new partners wherever possible, and providing reports against its own commitments. Understanding the impact of investment in GI in relation to the city's strategic priorities will require new research and analysis, building on the work undertaken as part of developing the strategy. Local universities will have an important part to play in this activity, harnessing their ability for world-class research and relationships with other cities who are also committed to action on GI.</p>   | 44 |
| M 34 | GI Strategy (draft) | Strategical\ Responsibilities | <p>This strategy provides the formal policy framework for action on green and blue infrastructure in the city, and as such is subject to the City Council's formal policy-making process. Implementation can not, however, simply be the responsibility of the City Council alone.</p> <p>The implementation plan will therefore need to be a stakeholder plan for the city, one which supports, enables and encourages all parties to get involved. It will provide the framework to bring together a wide range of public, private, academic and community stakeholders, including the Council, developers, larger, sometimes land holding bodies, as well as local community groups, 'friends of' groups, community groups, individuals, and others. The successful delivery of the strategy will depend on the actions of all.</p> <p>A similar approach has been put in place for the city's climate change action plan, Manchester: A Certain Future (MACF), recognising that all stakeholders will need to play their part in realising the city's vision to become a leading low carbon city by 2020. Since 2010 the delivery of MACF has been overseen by the MACF Steering Group, an independent group made up of representatives from the public, private, academic and third sectors. The Steering Group work with a well-established and growing network of stakeholders from across the city who are actively contributing to Manchester's action on climate change and environmental improvement. They are therefore well-placed to work with the City Council to develop the green and blue infrastructure implementation plan and support its delivery, drawing on the MACF network of stakeholders to maximise engagement and action.</p> <p>The Council and the Steering Group will work with stakeholders from across the city in 2015 to develop the implementation plan, providing a flexible framework that can be updated on an ongoing basis and draw together the collective efforts of Manchester in realising its vision to be a growing and green city.</p> | 42 |

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| M 35 | GI Strategy (draft) | Strategical\ Responsibilities | <p><b>4.2 Funding and Delivery Mechanisms</b><br/> The following section sets out the different funding and delivery mechanism that will underpin the implementation plan, recognising that new mechanisms will also need to be developed in the course of the strategy's delivery.<br/> Two different forms of funding and resources will be required for investment in Manchester's GI: capital funding for the physical delivery of new GI and enhancements to existing, and; revenue funding and human resources for its ongoing management and maintenance, ensuring that it can deliver maximum benefits throughout its life.<br/> As the role and levels of funding for local authorities continues to change, so does the need for new sources of funding for both aspects of GI investment. In all cases site-specific solutions will be needed, creating opportunities for innovative new partnerships between the Council, developers, community groups and others for the ongoing management and maintenance of GI.</p>   | 42 |
| M 36 | GI Strategy (draft) | Strategical\ Responsibilities | <p><b>Council/Planning</b><br/> The planning system provides an important framework within which green infrastructure can be safeguarded and enhanced, and provides mechanisms for new infrastructure to be created through development. The importance of green infrastructure is firmly embedded in the planning system and the National Planning Policy Framework (NPPF). Manchester's Local Plan, the Manchester Core Strategy 2012-27 set out the local policy context for GI. Policy EN9 is the principal Green Infrastructure Policy and this strategy adds detail to its implementation. There are also a significant number of other policies within the Local Plan that directly support the protection, enhancement and provision of GI. These includes EN1: Design Principles and Strategic Character Areas, EN8: Adaptation to Climate Change, EN10: Safeguarding Open Space, Sport and Recreation Facilities, EN11: Quantity of Open Space, Sport and Recreation, EN12: Area Priorities for Open Space, Sport and Recreation, EN14: Flood Risk, EN15: Biodiversity and Geological Conservation, EN17: Water Quality and DM1: Development Management. This strategy and the supporting Technical Report, together with other linked and developing strategies such as the Manchester Park's Strategy will assist in the implementation of these policies by:</p> <ul style="list-style-type: none"> <li>▪ Increasing the awareness of the socioeconomic case for investing in green and blue infrastructure</li> <li>▪ Setting out high level principles for integrating green infrastructure into new development</li> <li>▪ Identifying opportunities for linking new development with existing green and blue infrastructure within neighbourhoods.</li> </ul> <p>These opportunities for GI in new development can be incorporated within area specific masterplans, development frameworks or be used by developers and the City Council when engaging in pre-application discussions on development proposals.</p> | 42 |
| M 37 | GI Strategy (draft) | Strategical\ Responsibilities | <p><b>The Role of Developers</b><br/> Developers have a key role to play in contributing to the delivery of this strategy, in terms of responding directly to local planning policies, but also in terms of recognising that GI can add value to their scheme and looking to identify creative solutions for incorporating high quality GI as part of development.<br/> Section 3 has a specific objective relating to the role of new development and provides case studies and high-level guidance for developers on how to begin to incorporate high quality GI as part of development proposals and enhance existing spaces.<br/> A portfolio of case studies has been produced to show how green and blue infrastructure can be appropriately incorporated into sites awaiting development and within developments. Ultimately the appropriate incorporation of green and blue infrastructure can add to the overall value of a scheme, by improving its marketability and therefore the speed of sales, or enabling a higher quality tenant or end user. In some instances the higher value of the final development may justify an increased initial investment.</p>   | 43 |

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|------|---------------------|-------------------------------|--|----|
| M 38 | GI Strategy (draft) | Strategical\ Responsibilities | <p><b>The Role of Stakeholders</b></p> <p>Manchester is already home to a broad range of partners taking action to improve the city's green and blue infrastructure. A number of these organisations have been investing in the city's GI for a number of years, and have roles that are wholly or partly focused on this agenda. Their work to date in the city has already delivered transformational change and their continued commitment will be key in supporting the delivery of this strategy. These partners include:</p> <ul style="list-style-type: none"> <li>▪ Red Rose Forest; Groundwork; RSPB; Forestry Commission; National Trust; Canals and Rivers Trust; Environment Agency</li> </ul> <p>In addition to these environmentally-focussed organisations, the city has a number of other partners who also have a key role to play. They include major landholders with an interest/responsibility for the provision and maintenance of green infrastructure, those with a reach into the city's diverse communities, and service providers who could support investment in GI in order to deliver multiple outcomes. They include:</p> <ul style="list-style-type: none"> <li>▪ Registered housing providers; Major land and estate holders; Investment and development funds such as the Manchester Life Development Company; Clinical Commissioning Groups; Manchester Strategic Flood Risk Partnership</li> </ul> <p>A number of these partners are already active, as set out in the case studies throughout this document, and have been involved in the development of the strategy and the draft implementation plan. Ongoing engagement and partnership-based delivery both in developing external funding bids and delivering projects will be essential to delivering this strategy. Manchester's communities, voluntary organisations and interest groups will all need to continue to play an active part in improving the city's GI. There are already many examples of this type of activity in Manchester, sometimes working in partnership with the City Council and other organisations, other times working independently to take forward the initiatives that make a positive difference in their neighbourhoods. There are a large number of friends of groups who actively contribute to the management and upkeep of local parks, as well as arranging educational, recreational, health and other activities to engage individuals to make the most of their local park. Approximately 50 friends of parks groups are already active in Manchester. This significant resource already plays a major role in maximising the value of these spaces at the heart of communities, and will be a key consideration in the development of a new Park's Strategy for the city.</p> | 43 |
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**Table B. 3 Coded segments from Liverpool City Region and Warrington's Green Infrastructure Framework**

| Ref. code | Document           | Code                          | Citation  | Page |
|-----------|--------------------|-------------------------------|---|------|
| LCR 1     | Summary            | Ontology\ General situation   | Accounting for around 80% of the land area, 8,000 jobs and £350 million GVA across Liverpool City Region and Warrington, green infrastructure is by no means an afterthought; its wider economic value has been estimated at over £100bn per annum. It's clear that green infrastructure is pivotal to a successful and sustainable future.   | 2    |
| LCR 2     | Summary            | Ontology\ General situation   | Cities across the globe are catching on to a vital concept: that a green infrastructure approach can help deliver a range of benefits essential to our way of life, including attracting investment, safeguarding jobs and supporting growth, managing air and water quality and boosting health and wellbeing.   | 2    |
| LCR 3     | Technical document | Ontology\ Challenges          | In a time of financial restraint, it is essential that Liverpool City Region use all available assets to try to achieve the aspirations for the economy, improved health, creating high quality places to live within a rich and biodiverse natural environment. This framework identifies how green infrastructure planning and delivery can help to achieve these aspirations.  | 12   |
| LCR 4     | Technical document | Ontology\ context of strategy | Green infrastructure planning has developed significantly in northwest England over the last few years. From the first landscape scale green infrastructure framework produced for The Mersey Belt through to The Natural Economy North West Programme. NENW in particular made significant progress in developing the economic case for green infrastructure planning and implementation, producing leading edge studies and information that have been used as the basis for this framework. There has also been a significant amount of work across the North West looking at the climate change adaptation and mitigation benefits of green infrastructure <sup>11</sup> . This has produced a range of resources, including a guidance document to aid policy development and delivery entitled 'Green Infrastructure to Combat Climate Change: A Framework for Action in Cheshire, Cumbria, Greater Manchester, Lancashire, | 11   |

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|        |                    |                                  | and Merseyside'. This framework also builds on the methodology and ideas that were developed in order to prepare the Liverpool Green Infrastructure Strategy.   |    |
| LCR 5  | Technical document | Ontology\<br>context of strategy | In addition the framework aims to provide an opportunity for individuals, groups and organisations to focus on key, shared priorities for the city region. It also can identify and target resources at areas of greatest need across the city region and Warrington. In a time of financial restraint, it is essential that Liverpool City Region use all available assets to try to achieve the aspirations for the economy, improved health, creating high quality places to live within a rich and biodiverse natural environment. This framework identifies how green infrastructure planning and delivery can help to achieve these aspirations.  | 12 |
| LCR 6  | Summary            | Ontology\<br>context of strategy | Liverpool City Region and Warrington is already recognised globally for its green infrastructure planning and delivery. We have used this expertise to create this framework: reinforcing the value of green infrastructure assets, and integrating green infrastructure thinking into our policies and future practice   | 2  |
| LCR 7  | Technical document | Ontology\<br>context of strategy | Liverpool City Region Green Infrastructure Framework has been prepared at a time of great change. It was originally mandated by the Environment and Waste Board, a sub group of the Liverpool City Region Board, which considered issues requiring coordinated activity across administrative boundaries with implications for the economic success, quality of life and sustainable development of the City Region.  | 9  |
| LCR 8  | Technical document | Ontology\<br>context of strategy | Natural England and the Mersey Forest Partnership have provided the funding to undertake the work, and a wide range of partners have invested time and effort into helping to shape the development of the framework. The Mersey Forest Team has co-ordinated the work and partner input, carried out the mapping, analysis, prepared the documents and undertook consultation with stakeholders.   | 9  |
| LCR 9  | Action Plan        | Ontology\<br>context of strategy | <p>Purpose of the Framework</p> <ul style="list-style-type: none"> <li>▪ For the first time produce an evidence base for the city region and Warrington's green infrastructure to help inform decisions about land use, planning and management.</li> <li>▪ Support advocacy for green infrastructure to be planned and managed as a critical infrastructure that can and should be used to help tackle priority issues for the city region and Warrington.</li> <li>▪ Identify key activities and actions at a city region level that meet identified priorities.</li> <li>▪ These can form the basis for a programme of investment at a city region level that can bring together organisations from a range of sectors through the Local Nature Partnerships to cooperate, increase their impact, and focus on critical issues which provide mutual benefits.</li> </ul> | 6  |
| LCR 10 | Action Plan        | Ontology\<br>context of strategy | This framework can help us to sharpen up our strategies, proofcheck our policies, and ensure smarter green decision-making in the future. It is for everyone to use and all to benefit from, and is critical to the prosperity and future of our city region. Only by using the evidence base contained within the framework, and investing in nature, can we bank on our natural assets to deliver the benefits we need to grow and succeed.   | 6  |
| LCR 11 | Technical document | Ontology\<br>Definition GI       | Green Infrastructure (GI) planning highlights the role of the natural environment in enabling our economy and society to function. GI is therefore a critical infrastructure. It needs to be considered and planned for in the same way as water, waste, transport and energy infrastructure for a successful and resilient Liverpool City Region and Warrington. In simple terms green infrastructure is the vegetation and all of the open water found in our area.   | 9  |
| LCR 12 | Technical document | Ontology\<br>Definition GI       | <p>Green Infrastructure can be defined as: "Our life support system – the network of natural environmental components and green and blue spaces that lies within and around our towns and city, providing multiple social, economic and environmental benefits." The definition identifies green infrastructure as:</p> <ul style="list-style-type: none"> <li>▪ A system, the parts are interrelated and need to be planned and managed at appropriate scale and together.</li> <li>▪ Including both the vegetation and water elements of the natural environment.</li> <li>▪ Both urban and rural</li> <li>▪ Providing multiple benefits - one intervention, if well planned, can provide many benefits -This is one of the key advantages of taking a green infrastructure planning approach.</li> </ul>   | 17 |

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| LCR 13 | Action Plan        | Normative\Vision             | <ul style="list-style-type: none"> <li>▪ As a low carbon economy, Liverpool City Region and Warrington maximises the benefits that are delivered through strategic GI planning to support sustainable economic growth</li> <li>▪ The natural environment is seen as a key health asset. People in the city region and Warrington state that the natural environment and their enjoyment of it is a major contributor to their wellbeing</li> <li>▪ The city region and Warrington has adapted well to climate change and supports others in making their change</li> <li>▪ Extensive, accessible open spaces, well linked by an extensive paths network, are cherished by local communities and offer opportunities for sustainable recreation and leisure and encourage visitors to enjoy the natural beauty of the area</li> <li>▪ The developing ecological framework is a precious resource, providing critical functions and safeguarding our biodiversity</li> <li>▪ An attractive and thriving rural economy is key to the success of the city region, providing valuable fuel and food resources as well as the setting for a high tech and knowledge based economy</li> </ul> | 9  |
| LCR 14 | Action Plan        | Normative\ Specific goals    | <ul style="list-style-type: none"> <li>▪ Setting the scene for growth</li> <li>▪ Supporting health and wellbeing</li> <li>▪ Adapting to climate change</li> <li>▪ Providing recreation, leisure and tourism</li> <li>▪ Enhancing the ecological framework</li> <li>▪ Developing the rural economy</li> </ul>   | 9  |
| LCR 15 | Summary            | Strategical\ Potential of GI | An area rich in biodiversity is likely to be more resilient in the face of a wide range of climate, economic, demographic and ecological challenges. Delivering the Green Infrastructure Framework can create larger, more connected, better-managed habitats and wildlife corridors to increase biodiversity.   | 4  |
| LCR 16 | Summary            | Strategical\ Potential of GI | Attractive, high quality places attract skills and capital – and green infrastructure plays a critical role in setting the scene for this growth and investment. Green Infrastructure can also help to overcome barriers to investment, so called 'pinch points' enabling sustainable development.   | 3  |
| LCR 17 | Action Plan        | Strategical\ Potential of GI | Cities across the globe are catching on to a vital concept: that a green infrastructure approach can help deliver a range of benefits essential to our way of life, including attracting investment, safeguarding jobs and supporting growth, managing air and water quality and boosting health and wellbeing.  | 6  |
| LCR 18 | Summary            | Strategical\ Potential of GI | Covering 58% of the area and accounting for 22% of Merseyside's GVA, the rural economy is a crucial part of the green infrastructure framework. It provides valuable fuel and food resources as well as providing the setting for a high-tech, knowledgebased economy. There's also economic opportunity tied to climate change adaptation. The ICEP and Mersey Leader programmes in the city region have demonstrated the capacity of the sector to generate new jobs and improve rural business productivity.  | 3  |
| LCR 19 | Summary            | Strategical\ Potential of GI | Higher levels of green infrastructure can lead to improved physical and mental health and help reduce health inequalities. That's not only good news for our wellbeing, it can also save the UK economy around £500 million every year in reduced NHS costs.   | 3  |
| LCR 21 | Summary            | Strategical\ Potential of GI | Liverpool City Region and Warrington have a wealth of natural assets that attract visitors. From Sefton Coast to Halewood Triangle, Sefton Park to Bold Forest Park, Runcorn Heath and Risley Moss to the Dee Estuary – many of our open spaces are truly beautiful. Around 90% of people believe that parks and open spaces improve their quality of life, and with over 2.6 billion visits every year, urban parks are an incredible public resource.  | 3  |
| LCR 22 | Technical document | Strategical\ Potential of GI | Planned, implemented and managed appropriately, our natural environment can provide a range of benefits to support our economy and improve quality of place and life. Green infrastructure identifies the functionality and benefits we derive from the natural environment and in particular how it helps to achieve the long term strategic ambitions for sustainable growth.  | 12 |
| LCR 23 | Summary            | Strategical\                 | Planning and delivery of green infrastructure has been identified as an effective and 'no regrets' action to help towns and cities adapt to projected climate change.  | 4  |

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|        |                    | Potential of GI                  |  |    |
|--------|--------------------|----------------------------------|--|----|
| LCR 24 | Technical document | Strategical\<br>Potential of GI  | <p>Setting the Scene for Growth<br/>Green infrastructure can be the setting for the economy, creating good quality of place and providing an excellent quality of life, supporting sustainable economic growth.</p> <p>Supporting Health and Wellbeing<br/>Green infrastructure provides a wealth of health benefits. The city region has areas of extreme poor health that require long term and innovative solutions. The basis for activity under this priority is both to promote better health and to provide for recovery or healing from illness.</p> <p>Providing Recreation, Leisure and Tourism<br/>High quality green infrastructure attracts visitors and can increase the length of stay as well as attracting new visitors. High quality access and recreation provides the playground for those who live, work and visit the city region.</p> <p>Developing the Rural Economy<br/>The rural economy relies on green infrastructure for many of its attributes. Urban areas receive many green infrastructure benefits from rural areas, but the link between urban and rural and their interdependencies are not always recognised.</p> <p>Supporting Adaptation to Climate Change<br/>Green infrastructure provides an evidence base set of adaptation and mitigation actions that can prepare the region for projected climate change and assist in the development of a low carbon economy. Enhancing the Ecological Framework Biodiversity is a barometer for the health of the environment or our green infrastructure; it is the basis for all of the functions that we depend upon.</p>  | 74 |
| LCR 25 | Action Plan        | Strategical\<br>Priority areas   | <ul style="list-style-type: none"> <li>▪ Plan and deliver green infrastructure to help overcome “pinch points” that undermine investment potential.</li> <li>▪ Use the Green Infrastructure Framework to shape the content and delivery of European Structural and rural Development Funds.</li> <li>▪ Engage the non-environmental sector more effectively through the Local Nature Partnership and Local Enterprise Partnership link and Community Environment Fund.</li> <li>▪ Fully utilise green infrastructure planning, delivery and management to reduce health inequalities, promote positive wellbeing and reduce the prevalence of poor mental and physical health in support of the Decade of Health and Wellbeing</li> <li>▪ Use GI to help adapt our area to projected climate change and assist in the creation of a low carbon economy.</li> <li>▪ Build the GI Framework into city region and cross-boundary plans and strategies</li> <li>▪ Support the aspiration for the Mersey as the cleanest and most ecologically rich river in Europe</li> <li>▪ Create and develop green infrastructure tourism assets such as a coastal areas, large parks, greenways such as Sankey Valley and the Forest Parks.</li> <li>▪ Use the green infrastructure of the city region and Warrington to promote and “sell” the area as a great place to live, work and invest. Use it to help bid for Green Capital.</li> <li>▪ Through green infrastructure planning and delivery enhance the ecological framework through creation of more and bigger areas for nature that are well-managed and connected to form an ecological network.</li> <li>▪ Deliver The Mersey Forest Plan, increasing woodland cover in areas of greatest need, deliver “more from trees” and achieve a “woodland culture”.</li> <li>▪ Use the green infrastructure assets of the city region and Warrington support increased active travel, walking and cycling for work, recreation and leisure.</li> </ul> | 10 |
| LCR 26 | Action Plan        | Strategical\<br>Responsibilities | <p>Each of these Activities has a lead organisation identified. Each of the lead organisations is part of the Liverpool City Region Local Nature Partnership, Nature Connected Nature Connected owns the Framework, it forms part of its work plan and progress is monitored.</p>  | 9  |
| LCR 27 | Action Plan        | Strategical\<br>Responsibilities | <p>It is proposed that the partnership that developed the Green Infrastructure Framework continues to take forward the actions, and in particular the 12 key activities. We also propose that a joint mandate from Nature Connected and LEP provide the strategic support for this work to enable activity. Progress on the actions will be reported to Nature Connected</p>   | 76 |

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| LCR 28 | Action Plan | Strategical\ Responsibilities | <p>Funding</p> <p>As part of the LNP architecture a resources group will be established and if the LNP approved their role in mandating the Green Infrastructure Framework this group should also support the funding aspirations set out in this Action Plan for the city region and Warrington Green Infrastructure Framework. For example work is already well advances on the Natural Health Service Business Plan and has started on the influencing of post 2014 EU Structural and Rural funds. As a third strand of action we will look to work closely with the National GI Partnership to both promote the work being carried out locally and also to learn from other parts of the country, In particular we have started to explore the opportunities for Payments for Eco-system services. Key funding targets are:</p> <ul style="list-style-type: none"> <li>▪ Payments for Ecosystem Services</li> <li>▪ EU Structural Funds</li> <li>▪ Community Infrastructure Levy</li> <li>▪ Section 106 through Local Plans</li> <li>▪ Community Environment Fund (matched by elements of the above)</li> <li>▪ Landfill tax</li> <li>▪ Lottery Funds</li> </ul> | 76 |
| LCR 29 | Action Plan | Strategical\ Responsibilities | <p>Updating</p> <p>It is proposed that the actions are reviewed annually by the Liverpool City Region and the Cheshire and Warrington Local Nature Partnerships. This also provides the opportunity to update and amend actions and as date allows the basic data upon which the Framework is based. The Mersey Forest Team has offered to help to keep the plan updated in this way</p>   | 76 |

**Table B. 4 Coded segments from Liverpool’s Green Infrastructure Strategy**

| Ref. code | Document           | Code                        | Citation  | Page |
|-----------|--------------------|-----------------------------|---|------|
| L 1       | Executive Summary  | Ontology\ General situation | 62% of the city is green infrastructure. Liverpool is a green city and should use this fact for marketing and competitive advantage.  | 5    |
| L 2       | Technical Document | Ontology\ General situation | <p>The cultural offer of the city is good, and the Capital of Culture year helped to raise the profile of the city significantly improving its visitor numbers and making it the fifth most visited city in the UK (previously 16th). The parks and open spaces of Liverpool are also part of the culture of the city with 70 parks, 45 playgrounds and four local nature reserves.</p> <p>The city has the second largest area of public parks in the UK.</p> <p>6.2.2. Visitor numbers are expected to increase significantly as Liverpool is the main destination brand for the city Region Tourism Strategy, with planned increases in both overseas visits and day visitors.</p> | 43   |
| L 3       | Executive Summary  | Ontology\ Challenges        | <p>▪ Low levels of green infrastructure occur in areas of the city with a higher incidence of:</p> <ul style="list-style-type: none"> <li>▪ Coronary heart disease</li> <li>▪ Poor mental health</li> <li>▪ Poor air quality</li> </ul>   | 5    |
| L 4       | Executive Summary  | Ontology\ Challenges        | <p>The City Centre and Inner Areas have low levels of green infrastructure and that which is available is of low functionality.</p> <ul style="list-style-type: none"> <li>▪ Green infrastructure is not equally distributed across the city. 22% of the areas has 80% of the total accessible green infrastructure and some areas have no accessible green infrastructure.</li> <li>▪ The most affluent areas of the city have 18% more green infrastructure than the most deprived.</li> </ul>  | 5    |

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| L 5  | Technical Document | Ontology\<br>Challenges          | 6.1.2. Despite these improvements, the employment rate is still well below the regional and national averages, with many unable to work due to incapacity. The city also has significant areas of deprivation, across all measures (see Figure 7) and over 460 ha of derelict and vacant land.   | 42 |
| L 6  | Technical Document | Ontology\<br>Challenges          | 6.1.3. The recession hit the city later than other areas of the country, but it has resulted in an increase in unemployment and a reduction in investment and growth. The public sector accounts for 39% of employment in the city. Reductions in public spending will have implications for the speed of economic recovery in the city. A key issue for all sectors will be how to get back to sustainable growth.  | 42 |
| L 7  | Technical Document | Ontology\<br>Challenges          | Health deprivation and inequality <ul style="list-style-type: none"> <li>▪ High levels of coronary heart disease, obesity and diabetes</li> <li>▪ High levels of people who feel in poor health and with poor mental health</li> <li>▪ Low levels of physical activity</li> </ul>  | 53 |
| L 8  | Technical Document | Ontology\<br>Challenges          | The urban heat island effect will make the city unpleasant for living and working therefore there will be increased need for shading and evaporative cooling <ul style="list-style-type: none"> <li>▪ Vulnerable communities will be particularly affected by increased temperatures</li> <li>▪ Climate change will place increasing pressure on water management infrastructure in the city</li> <li>▪ Water quality may deteriorate</li> <li>▪ Drought and water shortages may affect the functionality of the green infrastructure</li> <li>▪ Other species may need assistance in moving into new climate spaces as the climate changes</li> <li>▪ Steps to mitigate against further and increased climate change must be taken</li> <li>▪ Opportunities which may arise as a result of a changed climate should be exploited – for example increased opportunities for the visitor economy</li> </ul> | 58 |
| L 9  | Technical Document | Ontology\<br>Challenges          | <ul style="list-style-type: none"> <li>▪ Other species may have difficulty moving through the landscape in a changed climate</li> <li>▪ Development threatens green spaces and habitats in the city</li> <li>▪ Habitats may become fragmented - preventing species migration</li> <li>▪ Management of green spaces in the city restricts the suitability of the green space as a habitat</li> </ul>  | 64 |
| L 10 | Executive Summary  | Ontology\<br>context of strategy | The purpose of the strategy is to support the aspirations for the future sustainable development of Liverpool to ensure that it is: "...one of the best places to live, work, invest and enjoy life"   | 3  |
| L 11 | Executive Summary  | Ontology\<br>context of strategy | The Strategy has been commissioned by Liverpool City Council Planning Service, funded through an Area Based Grant that was applied for by Liverpool. City Council in partnership with Liverpool Primary Care Trust (PCT) to Liverpool First.   | 3  |
| L 12 | Executive Summary  | Ontology\<br>context of strategy | This strategy has been developed to support the Core Strategy for Liverpool. The Core Strategy identifies three sub areas that have differing characteristics; City Centre, the Inner Areas and the Outer Areas. Within these are a number of sub areas including those that are likely to undergo greatest change due to housing growth or strategic investment for economic growth (Map 1). This Green Infrastructure Strategy also supports many of the city's other key strategies, including the Sustainable Community Strategy demonstrating how this approach can add value.  | 9  |
| L 13 | Executive Summary  | Ontology\<br>context of strategy | The principle purposes of this strategy are to identify specific actions that can assist the Liverpool health sector and Liverpool City Council improve health outcomes in the city, while creating a high quality environment for business and people. The strategy also looks at how green infrastructure can help Liverpool to adapt to projected climate change and support biodiversity in the city.  | 14 |
| L 14 | Executive Summary  | Ontology\<br>context of strategy | The Liverpool Green Infrastructure Strategy has been developed to maximise the benefits that the city can gain from the sustainable management of its natural environment.   | 3  |
| L 15 | Executive Summary  | Ontology\<br>Definition GI       | Green infrastructure is a critical infrastructure for the economy and health of the city.  | 3  |

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|------|--------------------|------------------------------|--|-----|
| L 16 | Executive Summary  | Ontology\<br>Definition GI   | Green infrastructure is simply a term that is used to cover all the vegetation and open water in and around the city, whether it is rare or common, private or public, in the city centre or the city suburbs - Croxteth Park or a single street tree. However, green infrastructure planning is a new approach, going beyond business as usual, focused on the benefits that can be delivered.  | 3   |
| L 17 | Executive Summary  | Ontology\<br>Definition GI   | The city's life support system – the network of natural environmental components and green and blue spaces that lies within and around Liverpool and provides multiple social, economic and environmental benefits. Green infrastructure planning is a holistic approach that seeks to identify the functions that are being provided by the parks, trees, gardens, waterways and grassland across the whole of the city. In particular, how these functions, such as public recreation, water interception and reducing air pollution, provide benefits to address local need and key issues for the city. Green infrastructure planning is not a traditional approach to planning the natural environment. For the first time, all areas of vegetation and water have been assessed collectively, treating them as a system, and in light of the plans for growth and a range of socio-economic considerations; revealing a critical infrastructure for the city.  | 7   |
| L 18 | Technical Document | Ontology\<br>Definition GI   | Green infrastructure is a critical infrastructure and high quality green infrastructure should be seen as a necessity rather than an amenity. It underpins the sustainability and vitality of the city.  | 155 |
| L 19 | Technical Document | Normative\<br>Vision         | “Green Infrastructure is planned in Liverpool to support a safe, more inclusive, environmentally sustainable and enjoyable city, to provide essential life support functions for a world class city, that is adapted to climate change and where healthy living is a natural choice”   | 126 |
| L 20 | Technical Document | Normative\<br>Vision         | “Green infrastructure complements „grey infrastructure“ planning, creating high quality new housing environments and regeneration. Liverpool capitalises on and values its green infrastructure, maximising functionality to gain competitive advantage and support prosperity and grows within environmental limits.”   | 153 |
| L 21 | Technical Document | Normative\<br>Vision         | “The city is planned so that taking healthy options for all for everyday living is a natural choice.”  | 165 |
| L 22 | Technical Document | Normative\<br>Vision         | “Liverpool is well adapted to the changing climate. The green infrastructure network provides a vital urban cooling function, whilst also helping other species to adapt and move to new climate spaces. Action is also being taken to mitigate against further climate change.”   | 182 |
| L 23 | Technical Document | Normative\<br>Vision         | “The network of green infrastructure in the city supports thriving wildlife populations and healthy habitats that provide essential and valued services for the city.”   | 193 |
| L 24 | Technical Document | Normative\<br>Vision         | “Green infrastructure is valued and planned, so that maximum benefits are gained to support sustainable development, taking opportunities to provide multiple functions. There is a clear understanding of the value of green infrastructure amongst key decision makers and coordinated actions by delivery organisations.”   | 199 |
| L 25 | Executive Summary  | Normative\<br>Specific goals | <p>A sustainable city: Improving quality of place for projected housing growth and major regeneration programmes in order to attract investment, encouraging people to live and work in the city as well as increase the number of visitors to Liverpool. Increasing levels of productivity across the city. Developing a low carbon economy, including improving the opportunities for walking and cycling as part of everyday life in the city.</p> <p>A city providing natural choices for health: Tackling health deprivation and health inequality across the city and in particular help tackle the issues of coronary heart disease, obesity, and diabetes to help to reduce numbers of premature deaths. Increase levels of physical activity. Reduce the high levels of poor mental health across the city. Reduce levels of air pollution.</p> <p>A cool city: Use of green infrastructure to manage urban heat island effect particularly as it affects vulnerable communities. Managing water to provide irrigation for drought susceptible areas of green infrastructure to sustain their cooling function for the city. Incorporating SUDS into new developments to manage surface water. Retrofitting green infrastructure to adapt to high temperatures in the city centre, providing shade and passive cooling. The provision of corridors for species movement as climate changes.</p> <p>A green and biodiverse city: Protecting core biodiversity areas. Creating expansion areas and wildlife corridors. Ensuring that green infrastructure delivery programmes contribute to the delivery of biodiversity action plan habitat targets.</p> | 8   |

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| L 26 | Executive Summary  | Normative\ Specific goals    | Five priorities have been identified in order to deliver this vision. A series of actions are recommended with each priority.<br>A sustainable city: supporting business, regeneration and housing growth within environmental limits.<br>A city providing natural choices for health supporting improved physical and mental health.<br>A cool city adapted to projected climate change and mitigating impacts.<br>A green and biodiverse city supporting good quality of life for all.<br>A city where green infrastructure is well-planned treating green infrastructure as a critical infrastructure designed into development and change from the start.  | 6  |
| L 27 | Executive Summary  | Strategical\ Potential of GI | Green infrastructure interventions will help tackle some of Liverpool's most pressing problems.  | 5  |
| L 28 | Technical Document | Strategical\ Potential of GI | The provision of green infrastructure within Liverpool will make the landscape more permeable to other species as they move to find new „climate spaces“ in a changing climate.  | 63 |
| L 29 | Technical Document | Strategical\ Potential of GI | 6. SUPPORTING SUSTAINABLE HOUSING GROWTH AND REGENERATION<br>Key Issues Identified from this Section <ul style="list-style-type: none"> <li>▪ Quality of place for projected housing growth and major regeneration programmes</li> <li>▪ Increasing productivity</li> <li>▪ Attracting investment and people</li> <li>▪ Aspirations to significantly increase visitor numbers</li> <li>▪ Increasing visitor spend</li> <li>▪ Developing a low carbon economy</li> <li>▪ Improving walking and cycling routes as part of a low carbon economy</li> <li>▪ How the council uses its assets in support of its strategic aims and priorities</li> </ul>   | 42 |
| L 30 | Technical Document | Strategical\ Potential of GI | 7. IMPROVING HEALTH ACROSS THE CITY<br>Key Issues from this Section <ul style="list-style-type: none"> <li>▪ Health deprivation and inequality</li> <li>▪ High levels of coronary heart disease, obesity and diabetes</li> <li>▪ High levels of people who feel in poor health and with poor mental health</li> <li>▪ Low levels of physical activity</li> <li>▪ Hospital rebuilding programmes</li> </ul>   | 53 |
| L 31 | Technical Document | Strategical\ Potential of GI | 8. TACKLING CLIMATE CHANGE<br>Key issues from this section <ul style="list-style-type: none"> <li>▪ The urban heat island effect will make the city unpleasant for living and working therefore there will be increased need for shading and evaporative cooling</li> <li>▪ Vulnerable communities will be particularly affected by increased temperatures</li> <li>▪ Climate change will place increasing pressure on water management infrastructure in the city</li> <li>▪ Water quality may deteriorate</li> <li>▪ Drought and water shortages may affect the functionality of the green infrastructure</li> <li>▪ Other species may need assistance in moving into new climate spaces as the climate changes</li> <li>▪ Steps to mitigate against further and increased climate change must be taken</li> <li>▪ Opportunities which may arise as a result of a changed climate should be exploited – for example increased opportunities for the visitor economy</li> </ul> | 58 |
| L 32 | Technical Document | Strategical\ Potential of GI | Green infrastructure has a role to play in addressing some of the impacts and thereby in helping Liverpool to adapt to climate change.<br>8.2.2. Vegetation and permeable surfaces capture, store and infiltrate rainwater into the ground, thereby reducing both the volume and rate of rainwater runoff and thus the risk of surface water flooding.   | 62 |
| L 33 | Technical Document | Strategical\                 | Through evaporative cooling, green infrastructure can help to reduce the urban heat island effect.   | 62 |

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|      |                    | Potential of GI              |   |    |
| L 34 | Technical Document | Strategical\ Potential of GI | Green infrastructure provides localised shading to help people and buildings cope with high temperatures.   | 63 |
| L 35 | Technical Document | Strategical\ Potential of GI | The provision of green infrastructure within Liverpool will make the landscape more permeable to other species as they move to find new „climate spaces“ in a changing climate.   | 63 |
| L 36 | Technical Document | Strategical\ Potential of GI | 9. IMPROVING BIODIVERSITY<br>Key Issues from this section <ul style="list-style-type: none"> <li>▪ Other species may have difficulty moving through the landscape in a changed climate</li> <li>▪ Development threatens green spaces and habitats in the city</li> <li>▪ Habitats may become fragmented - preventing species migration</li> <li>▪ Management of green spaces in the city restricts the suitability of the green space as a habitat</li> </ul>   | 64 |
| L 37 | Technical Document | Strategical\ Potential of GI | 10. DESIGN AND MANAGEMENT QUALITY<br>Key Issues from this Section <ul style="list-style-type: none"> <li>▪ Interventions to support management of green infrastructure to ensure that high quality is provided and maintained.</li> <li>▪ Improving design quality of green infrastructure to ensure that the built in potential functionality is realised.</li> <li>▪ Securing suitable resources to ensure long term management.</li> <li>▪ Need for cross sector cooperation, integration and responsibility with regard to green infrastructure.</li> </ul>   | 66 |
| L 38 | Technical Document | Strategical\ Potential of GI | 11.2.3. Improving quality of place<br>11.2.3.1. Place making is fundamental to creating attractive and sustainable neighbourhoods. It is a central theme in the work of both the Homes and Communities Agency (Total Place Programme). Work by ECOTEC and Amion highlights the importance of green infrastructure in place making and through an improved living environment, in creating opportunities for leisure and recreation, in improving visual amenity and in enabling empowerment through increased community involvement and action. Quality green space in neighbourhoods and proximity to green spaces have been shown to increase the quality of life of residents and have a positive impact on land and property values. There is a clear link to the health priority in this strategy with guidance issued by the National Institute for Clinical Excellence for planners to ensure that opportunities for increased physical activity are considered in strategies and plans. This has been identified as developing “walkable” neighbourhoods. | 73 |
| L 39 | Technical Document | Strategical\ Potential of GI | 11.2.4. Attracting investment and driving up economic growth<br>11.2.4.1. Talented, creative people in the knowledge economy are attracted to high quality locations with quality environments, and research suggests that the presence of green space is central to these choices on location  | 74 |
| L 40 | Technical Document | Strategical\ Potential of GI | 11.2.5. Improved labour productivity [...]<br>11.2.5.2. Research conducted by ECOTEC proposes that „high quality accessible green spaces provide opportunities to develop a more productive workforce for employers through improved health, stress alleviation and attracting and retaining motivated people.“ In addition to reducing absence, through ill health, in the work place and creating attractive working environments, the sense of well-being people get from proximity to plants and green spaces enables them to be more productive.   | 74 |
| L 41 | Technical Document | Strategical\ Potential of GI | 11.2.6. Increased tourism and recreation employment<br>11.2.6.1. Green infrastructure creates low-cost and healthy leisure and recreation opportunities through the provision of footpaths, cycle paths and bridleways. Green infrastructure also stimulates tourism visits, which tend to last longer and involve more associated spend.   | 74 |

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| L 42 | Technical Document | Strategical\<br>Potential of GI | 11.3.1. General health and wellbeing<br>11.3.1.1. There is an extensive body of evidence to support green infrastructure interventions as a way of helping to improve health and wellbeing.<br>11.3.1.2. The evidence points to five main areas of health benefit that can be achieved through green infrastructure planning, management and delivery. <ul style="list-style-type: none"> <li>▪ Increased physical activity</li> <li>▪ Improving air quality</li> <li>▪ Improving mental health</li> <li>▪ Reducing health inequalities</li> <li>▪ Social cohesion</li> </ul>  | 75  |
| L 43 | Technical Document | Strategical\<br>Potential of GI | 11.3.2. Increasing physical activity [...] <p>11.3.2.3. Various epidemiological studies have demonstrated a positive relationship between green space and population health. For example, a study in the UK found „A higher proportion of green space in an area was generally associated with better population health.“</p>  | 75  |
| L 44 | Technical Document | Strategical\<br>Potential of GI | 11.3.3. Improving air quality <p>11.3.3.1. Trees and woodlands are particularly effective at removing some elements of pollution from the atmosphere.</p>  | 77  |
| L 45 | Technical Document | Strategical\<br>Potential of GI | 11.3.4. Improving mental health <p>[...] 11.3.4.2. Whilst there is good evidence to show that green infrastructure can help to support more active lifestyles, the evidence for positive impact on mental health problems is even stronger.</p>  | 77  |
| L 46 | Technical Document | Strategical\<br>Potential of GI | 11.3.5. Reducing health inequalities <p>11.3.5.1. Recent research at Glasgow University found that: “Populations exposed to greener environments also enjoy lower levels of income deprivation related health inequality. Physical environments which promote good health may be important in the fight to reduce socio-economic health inequalities.”</p>   | 78  |
| L 47 | Technical Document | Strategical\<br>Potential of GI | 11.3.6. Social cohesion <p>11.3.6.1. There are a range of studies that show that using green space leads to greater social contact and community cohesion.</p>   | 78  |
| L 48 | Technical Document | Strategical\<br>Potential of GI | 11.4.1. Mitigation and adaptation [...] <p>11.4.1.3. There are a number of services provided by green infrastructure which can help with both mitigation and adaptation.</p>   | 79  |
| L 49 | Technical Document | Strategical\<br>Potential of GI | 11.4.2. Managing high temperatures <p>11.4.2.1. Green infrastructure has the potential to help urban areas cope with increased temperatures, by providing evaporative cooling and shading.</p>   | 80  |
| L 50 | Technical Document | Strategical\<br>Potential of GI | 11.4.3. Helping other species to adapt <p>11.4.3.1. As the climate changes, the range of species may shift northwards and upwards to higher altitudes as they seek new „climate spaces“. A number of factors will limit their ability to do this, including their own dispersal ability and the nature of the landscape through which they are moving (i.e. the fragmentation of existing habitats and the permeability of the landscape between habitats). The management of linear features and corridors (e.g. river corridors, and road, railway and canal verges) for species movement may become increasingly important. Features oriented north-south may aid species movement, whereas east-west features could act as barriers unless appropriately designed.</p> | 82  |
| L 51 | Technical Document | Strategical\<br>Potential of GI | 11.4.4. Managing flooding <p>[...] Green infrastructure in the wider catchment can reduce the frequency of river floods, but in extreme rainfall events this is less significant. Land use management has a significant effect on runoff at local levels; wetlands and riparian and floodplain woodlands help to reduce peak flood volumes, and provide areas where rivers can flood without causing damage.</p>   | 83  |
| L 52 | Technical Document | Strategical\<br>Potential of GI | 7.3.2. Functions which support the green infrastructure policies identified in this strategy.<br>17.3.3. Green infrastructure functions which support a sustainable city: Aesthetic (31), public recreation (45), food production (17), cultural (30)<br>17.3.4. Green infrastructure functions which support a cool city: Shading from sun (11), evaporative cooling (10), water infiltration (20), water interception (21), flow reduction through surface roughness (19)<br>17.3.5. Green infrastructure functions which support natural choices for health: Green travel route (45), public recreation (45)<br>17.3.6. Green infrastructure functions which support a green and biodiverse city: Habitat for wildlife (35), corridor for wildlife(33)                  | 329 |

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| L 53 | Technical Document | Strategical\ Potential of GI | Liverpool has a national reputation for the good management of urban trees. Planting new urban trees is often a challenge, with issues of ownership, long term management, cost and conflict with underground services. However, in our towns and cities they represent one of the main ways of “retro-fitting” green infrastructure into the public realm, and they are multifunctional. [...]<br>9.1.9. Biodiversity is in part a measure of the health of a city’s green infrastructure resource. A thriving green infrastructure is likely to have a range of sustainably managed habitats that support a wide range of species. Providing connectivity offers opportunities for species movement, habitat expansion and enables south-north movement of species as climate warms.  | 65 |
| L 54 | Action Plan        | Strategical\ Priority areas  | The areas having the greatest number of needs requiring action to improve green infrastructure functionality are concentrated in the City Centre and Inner Areas. It is here that a co-ordinated approach to protecting and enhancing green infrastructure could make the greatest contribution to the city’s needs and aspirations, such as assisting in securing improvements to health and preparing the city to ameliorate the anticipated impacts of climate change<br>The Inner Areas coincide with the most significant proposed regeneration activity such as the Housing Market Renewal Area, Growth Point and Atlantic Gateway Strategic Investment Area. Supported by design guidance this provides an opportunity to improve green infrastructure functions, for example and not exclusively, by introducing green roofs, private gardens, street trees and well designed access routes and public realm  | 24 |
| L 55 | Action Plan        | Strategical\ Priority areas  | 4.2.1.4. The City Centre has seen enormous recent improvements and will continue to be a focus for investment. To the north and east, the Atlantic Gateway Strategic Investment Area and Housing Market Renewal Initiative will witness major regeneration activity. These coincide with the City’s Growth Point programme where 3000 of the city’s 40,000 new homes are to be provided.<br>4.2.1.5. Major developments, such as Super Port and Liverpool Knowledge Quarter will provide opportunities for green infrastructure interventions. The redevelopment of Alder Hey hospital is already using such an approach, looking to maximise the benefits from green infrastructure in terms of the image of the area and the health and wellbeing of the children and parents using the hospital.<br>4.2.1.6. In addition, there is a need to ensure that key gateways and routes to the city are of high quality and promote a positive image for Liverpool. | 37 |
| L 56 | Action Plan        | Strategical\ Priority areas  | Green infrastructure actions are targeted at the main areas for housing growth and regeneration across the city, where possible safeguarding the existing assets and seeking to provide green infrastructure in the areas of need   | 43 |
| L 57 | Action Plan        | Strategical\ Priority areas  | Opportunities are taken to improve green infrastructure around major gateways and routes into the city such as through Atlantic Gateway SIA and along the A580.   | 43 |
| L 58 | Action Plan        | Strategical\ Priority areas  | Green infrastructure is used as a mechanism to help create “walkable” neighbourhoods, linking green infrastructure with wider public realm to encourage walking and cycling. In particular, there is an opportunity to develop this approach in the New Heartlands and Growth Point programme areas.  | 43 |
| L 59 | Action Plan        | Strategical\ Priority areas  | Planning and other strategies support the temporary use of vacant or derelict land for food and fuel growing or other suitable uses, as part of the Liverpool City Council “Greening the City” programme  | 54 |
| L 60 | Action Plan        | Strategical\ Priority areas  | Increase the quality and quantity of green infrastructure to provide places of relative tranquillity in areas where there are higher levels of poor mental health.  | 55 |
| L 61 | Action Plan        | Strategical\ Priority areas  | Green infrastructure is used to reduce air pollution along main road routes into the city   | 55 |
| L 62 | Action Plan        | Strategical\ Priority areas  | Target provision of green infrastructure and improve accessibility of existing green infrastructure towards areas of the city that have high incidence of coronary heart disease, obesity and/or diabetes and low levels of accessible green infrastructure.  | 55 |
| L 63 | Action Plan        | Strategical\ Priority areas  | Take the opportunity provided by redevelopment of hospitals and health centres through programmes such as LIFT, to maximise the opportunity to use green infrastructure as part of an approach to improving health outcomes and sustainability, by creating attractive settings and maximising views of “green”. Alder Hey and Liverpool Knowledge Quarter provide examples and opportunities of what could be achieved. Health centres, hospitals and GP surgeries across the city should all be targeted to ensure that they contribute to the delivery of green infrastructure improvements to meet local need and are encouraged to make use of green infrastructure to help to improve health outcomes.  | 56 |

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| L 64 | Action Plan        | Strategical\ Priority areas   | Key areas for action include the City Centre and Atlantic Gateway, as well as areas of flood risk around the A580 and the eastern fringes of the city.  | 63  |
| L 65 | Executive Summary  | Strategical\ Priority areas   | The most effective actions will be those that concentrate on making the best use of the existing green infrastructure resource through appropriate management.  | 5   |
| L 66 | Executive Summary  | Strategical\ Priority areas   | Actions to focus on could be seen to be those that are achievable, high impact actions that have some resources already, or potentially available.  | 25  |
| L 67 | Technical Document | Strategical\ Priority areas   | <p>Key gateways and routes to the city are critical to the image of the city for visitors and potential investors. Creating high quality routes into the city and ensuring that key gateways are attractive can help to promote a positive image for Liverpool. The key routes and gateways are shown on Map 1. The Liverpool City Council Unitary Development Plan identifies a number of key Environmental Improvement Corridors, main routes into the city that require improvements in order to support an improved image for Liverpool.</p> <p>6.3.4. The City Region Green Infrastructure Framework theme “Setting the Scene for Growth” also highlights the key role of transport routes such as the M62, M58, A580 and A561 as being in helping to set the image of the area. These routes are all routes into Liverpool and whilst out of the city’s direct control they do have an impact on the image and perception of Liverpool in terms of quality of place and quality of life.</p>  | 44  |
| L 68 | Technical Document | Strategical\ Priority areas   | <p>The potential target areas for new housing in Liverpool have been assessed through the Strategic Housing Land Availability Assessment (SHLAA) and have been the subject of public consultation. Detailed allocations will take account of the green infrastructure. The range of new development will generate needs and put pressure on existing infrastructure, but will also create opportunities for new green infrastructure.</p> <p>13.5.1.7. Major developments, such as Super Port and Liverpool Knowledge Quarter will provide opportunities for green infrastructure interventions. The redevelopment of Alder Hey hospital is already using a green infrastructure approach, looking to maximise the benefits from green infrastructure in terms of the image of the area and the health and wellbeing of the children and parents using the hospital.</p> <p>13.5.1.8. In addition, there is a need to ensure that key gateways and routes to the city are of high quality and promote a positive image for Liverpool.</p> | 149 |
| L 69 | Technical Document | Strategical\ Priority areas   | Green infrastructure actions are targeted at the main areas for housing growth and regeneration across the city, where possible safeguarding the existing assets and seeking to provide green infrastructure in the areas of need.  | 153 |
| L 70 | Technical Document | Strategical\ Priority areas   | Opportunities are taken to improve the green infrastructure around major gateways and routes into the city such as the A57 and the A5080.   | 153 |
| L 71 | Technical Document | Strategical\ Priority areas   | Green infrastructure is used as a mechanism to help create “walkable” neighbourhoods, linking green infrastructure with wider public realm to encourage walking and cycling. In particular, there is an opportunity to develop this approach in the New Heartlands and Growth Point programme areas.  | 153 |
| L 72 | Technical Document | Strategical\ Responsibilities | <p>ACTION 5.1 13.9.3.2. Biodiversity by Design principles are developed for Liverpool as part of the Design Guide (Action 1.8).</p> <p>ACTION 5.2 13.9.3.3. The land change actions from this Liverpool Green Infrastructure Strategy included as part of the menu for the Community Infrastructure Levy.</p> <p>ACTION 5.3 13.9.3.4. A guide, promoting high quality design, taking into account landscape and urban design as well as climate change adaptation and biodiversity by design principles will be developed to support green infrastructure delivery across the city. (See action 1.8)</p> <p>ACTION 5.4 13.9.3.5. An agreed model is used assess the value of green infrastructure in the city and enable proper evaluation of policy and intervention in line with Future Land Use recommendations.</p>   | 199 |

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| L 73 | Technical Document | Strategical\ Responsibilities | ACTION 5.5 13.9.3.6. Ensure that the cross boundary issues such as City Region image and the impacts of cumulative development on recreational and nature conservation areas identified in the City Region Green Infrastructure Framework are incorporated into policy.<br>ACTION 5.6 13.9.3.7. Create a Liverpool Green Infrastructure Forum – or promote a sub regional forum linking to the city region green infrastructure framework and the work promoted by the City Region Environment and Waste Board.<br>ACTION 5.7 13.9.3.8. Embed this Green Infrastructure Strategy within other city strategic documents including the Local Development Framework, the Sustainable Community Strategy and the range of economic, health, open space, trees and woodlands, tourism and other relevant strategies and plans that are developed for the city.   | 200 |
| L 74 | Technical Document | Strategical\ Responsibilities | 13.9.4.3. Resources to help deliver the necessary green infrastructure for the city will be required. Taking the opportunities to include the Green Infrastructure Strategy within the Community Infrastructure Levy (CIL), and the use of S106 will be important. There are also opportunities to use the strategy as the evidence base to secure other non- planning sources of funding. For example, the Liverpool Knowledge Quarter study has been used as an evidence base to bid for “City Cooling” funds to Europe and to charitable trusts.   | 200 |
| L 75 | Technical Document | Strategical\ Responsibilities | 13.9.4.4. The development of Design Guidance (Action 5.3) as Supplementary Planning Document within the Local Development Framework will support the S106 and CIL approach and ensure that the key actions are delivered through development management whenever possible.<br>13.9.4.5. Mechanisms to support the long-term management of existing and new green infrastructure, and in particular the green infrastructure assets of the city, need to be developed. This may include a the “green infrastructure” fund (Action 5.1) for the city, ringfencing resources from CIL and S106 along with other funds managed through the Green Infrastructure Forum as part of the LSP structure (for instance). It may also include development of training programmes to support people to get back to work through work in the natural environment, managing the green infrastructure of the city.<br>13.9.4.6. Examples of community ownership or stewardship have been identified in “Greening the City” and taking a flexible approach to long-term management, encouraging wider involvement will help to target scarce public resources on the critical areas of green infrastructure across the city.<br>13.9.4.7. Coordinated delivery of well-designed green infrastructure may be facilitated by a Green Infrastructure Forum, linked to the city region structures. This can help to update and evolve the Green Infrastructure Strategy as well as take opportunities to tackle larger issues collectively and seek ways to coordinate and target activity in priority areas identified in this strategy.<br>13.9.4.8. The forum should also assist in embedding the Green Infrastructure Strategy into the wide range of policies and strategies that it needs to influence. | 201 |
| L 76 | Technical Document | Strategical\ Responsibilities | 13.10.4.1. In order to bring about the changes required to ensure that Liverpool’s green infrastructure plays a role as a critical infrastructure in the sustainable development of the city, support will be required, it is recommended that the city should: <ul style="list-style-type: none"> <li>▪ Maintain a strong green infrastructure policy in the Local Development Framework to support the recommendations and actions set out in this strategy and ensure that area action plans also support the actions and make use of the data gathered.</li> <li>▪ Ensure that the Green Infrastructure Action Plan is part of the Community Infrastructure Levy (CIL) menu or similar mechanisms.</li> <li>▪ Develop a “Green Infrastructure and Health” fund to make use of CIL and S106 funds, targeted at delivery of green infrastructure actions to improve health and wellbeing.</li> <li>▪ In partnership with others support the development of a green infrastructure forum.</li> </ul>   | 202 |
| L 77 | Technical Document | Strategical\ Responsibilities | 13.10.5.1. Guidance can help to disseminate, advocate and develop the actions and recommendations set out in this strategy. The city should: <ul style="list-style-type: none"> <li>▪ Develop a design guide to support the implementation of the Green Infrastructure Strategy- to include climate change by design, biodiversity by design, GRaBs and ForeStClim principles.</li> <li>▪ Develop a Green Infrastructure Target for each neighbourhood and use this as part of the formal planning approval process - including emphasis on green roofs and SUDS where most appropriate.</li> <li>▪ Adopt recommendations from the ecological framework and ensure that interventions help to achieve the green infrastructure habitat action plan.</li> </ul>  | 203 |
| L 78 | Technical Document | Strategical\ Responsibilities | 13.10.6.6. For each action a Lead Agency (Figure 42) along with examples of suggested support agencies have been identified. Again this information has been consulted upon, but the lead agencies are not “signed up” to lead actions. In the Action Plan, a Green Infrastructure Forum is proposed that could also operate as an exchange, to share information and deliver the Action Plan. Individuals from the agencies in Figure 42, along with the stakeholder group could be invited to be the initial members of the forum.  | 205 |
| L 79 | Action Plan        | Strategical\ Responsibilities | Require detailed green infrastructure plans for all major developments. An example is provided in Appendix 2 of the Technical Document. The plan should be prepared by the project proposer, showing how the development will contribute to the Liverpool Green Infrastructure Strategy.  | 44  |

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| L 80 | Action Plan       | Strategical\ Responsibilities | The Green Infrastructure Target (an approach to ensure that development uses green infrastructure to best effect) is developed and used for all development in Liverpool with specific targets for each of the Core Strategy Sub Areas.  | 44 |
| L 81 | Action Plan       | Strategical\ Responsibilities | Develop a Design Guide, as a Supplementary Planning Document to support green infrastructure delivery across the city  | 44 |
| L 82 | Executive Summary | Strategical\ Responsibilities | <p>The Action Plan calls for a collaborative approach to delivering the strategy, with a forum created to bring together those who are best placed to resource and/or deliver the actions. There is a need for high-level support for the delivery of the action plan, to embed it within existing structures and ensure that the actions are followed through into delivered programmes.</p> <p>The action plan sets out the need for:</p> <ul style="list-style-type: none"> <li>▪ A strong green infrastructure policy and Supplementary Planning Document within the Local Development Framework.</li> <li>▪ Health sector to promote green infrastructure planning as a key aspect of improving public health</li> <li>▪ Support from the Local Strategic Partnership at board level</li> <li>▪ Support from Liverpool City Council at cabinet level</li> <li>▪ Support from Liverpool Vision</li> <li>▪ Create a Liverpool Green Infrastructure Forum</li> </ul> | 24 |