

LANDSCAPE AND THE CITY; CREATING A SUSTAINABLE DEVELOPMENT

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Resumo

Este artigo examina o potencial de adotar uma abordagem holística em estratégias urbanas e regionais, a fim de compreender de que forma é que estas podem contribuir mais eficazmente para os atuais desafios globais. Investigação de carácter estratégico mais abrangente, que investiga em que medida baixo carbono e qualidade espacial podem ser implementados a nível regional, demonstra que existem benefícios na adoção de uma série de processos para implementar desenvolvimento urbano integrado e sustentável.

Os casos de estudo examinados incluem o Observatório da Paisagem (Espanha), o Room for the River (Holanda) e o HS2/HS2LV (Reino Unido). O Observatório da Paisagem tem vindo a sensibilizar o público para o valor da paisagem de tal modo que existe agora uma lei pública que protege a paisagem na Catalunha. Uma investigação baseada em projetos que se centram na adaptação climática na Holanda demonstra o potencial e o significado da introdução de baixo carbono e qualidade espacial em projetos de infraestrutura urbana e regional. Uma análise ao projeto ferroviário de alta velocidade HS2, no Reino Unido, ilustra como poderá ser possível influenciar a perceção e o desenvolvimento de um projeto de engenharia singular, a fim de transmitir uma visão mais ampla e sustentável, e o impacto que isso pode ter em paisagens de futuras cidades, vilas e áreas rurais. A importância do desenvolvimento de processos de aquisição, políticas e legislações como partes integrantes da fase gestão de projetos de paisagens urbanas e regionais são também considerados necessários para futuras estratégias de paisagem.

Os resultados preliminares indicam que a implementação bem-sucedida requer o desenvolvimento de uma visão para a paisagem e a compreensão dos conceitos de baixo carbono e qualidade espacial através do design, a fim de melhor se manifestar na infraestrutura e criar valor acrescentado para nossas cidades e regiões.

PALAVRAS CHAVES

Desenho da paisagem, espaço de vivência, baixo carbono, qualidade espacial, Adaptação climática

Abstract

This paper examines the potential of a holistic approach for urban and regional strategies in order to understand the way this might contribute more effectively to current global challenges. Part of a wider research strategy investigating the extent to which low carbon and spatial quality can be delivered at a regional level, it demonstrates benefits of adopting a range of processes to deliver integrated and sustainable urban development.

The case studies examined include the Landscape Observatory (Spain), the Room for the River (the Netherlands) and HS2/HS2LV (UK). The Landscape Observatory has raised public awareness of the value of landscape to the extent to which there is now a public law protecting landscape in Catalonia. An investigation of projects dealing with climate adaptation in the Netherlands demonstrates the potential and significance of introducing low carbon and the quality of space in urban and regional infrastructure projects. An examination of the HS2 high-speed rail project in the UK illustrates how it might be possible to impact on the perception and development of a singular engineering project in order to convey a wider sustainable vision and the impact that this might have on future landscape in towns, cities and rural areas. The significance of development of procurement processes, policies and legislations as part of the administration phase of urban and regional landscape schemes are also considered necessary for future landscape strategies.

Initial outcomes indicate that successful delivery requires the development of a landscape vision and the understanding of low carbon and spatial quality concepts through design in order to be better expressed in the infrastructure and create added value to our cities and regions.

KEYWORDS

landscape design, living space, low carbon, spatial quality, climate adaptation

Introduction

This research examines the way in which principles such as low carbon and spatial quality can be incorporated into strategic regional schemes to create a fully integrated sustainable development. Its purpose is to examine how concepts of sustainability, quality and low carbon can be expressed at a regional scale rather than simply at a detailed level of construction.

Three pioneering schemes have been selected as case studies, in Spain (the 'Landscape Observatory'), the Netherlands (the 'Room for the River') and the UK ('HS2/HS2LV') representing a range of projects to raise awareness of landscape and spatial quality (Catalonia) as way to implement spatial quality within a low carbon agenda on a major regional project (the Netherlands) and at the earliest stages of planning a major infrastructure (UK). Through the exploration of those three schemes the paper will examine ways of best practice and key ideas towards the establishment of a sustainable urban environment.

As Stephenson (2010) states, 'presenting landscape as 'space' has a long pedigree in assessment practice, but conveying its rich and messy place-values is still a rarity in practice'. That statement not only shows there is a connection between the landscape idea and the concepts of spatial quality and sustainability, but that there is also a lack of knowledge on the way these complex messages can be effectively conveyed and spatially delivered. As a result landscape is considered to be the 'space' where the sustainable activities take place, rather than the 'place' that will be created and be part of a sustainable strategic development. Also, the concepts of sustainability and low carbon are often considered only relevant to CO₂ emissions (Yuan et al., 2011) without considering the broader idea of sense of place and sustainable life style. Investigating the conceptual and design role in the above pioneer landscape projects the paper illustrates the potential of introducing low carbon and quality of space as a vital aspect of urban and regional landscape strategies.

Aim of the research

With the broader research focus to be on urban and regional landscape strategies the relation of such schemes to climate change, sustainability, low carbon and sense of place and their design integration is significant.

This paper aims to investigate the mechanisms supporting a sustainable landscape development as well as the extent to which low carbon and spatial quality can be delivered in urban and regional infrastructure projects.

Methodology

The paper focuses on the exploration of sustainable operations across the three landscape strategies



that have resulted in the delivery of pioneering urban and regional schemes. The Catalan, the Netherlands and the UK case studies are used to illustrate this venture.

The decision to include the Landscape Observatory of Catalonia (Spain) in this research is based on the fact that it works in a framework of sustainable development, increasing knowledge for the landscape and monitoring the landscape changes. It is a significant demonstration on how to 'sensitise' the Catalan society and the way this raises awareness on the development of the land and impacts on the territory. The Landscape Observatory of Catalonia is an advisory body on landscape issues for both the government of Catalonia and the Catalan society. Originally established to implement the European Landscape Convention (ELC), it has succeeded in bringing attention to the 'land' and create a landscape-oriented culture. The Observatory's main activities are; monitoring the evolution of the landscape, identifying ways that landscape awareness can be embedded in policy and legal documents and looking at a different way of spatial planning; the researcher will explore how it was established and the reasons why it has been so successful, changing views and minds regarding landscape.

Looking at how these ideas have been communicated to the society and how this affects the establishment of a sustainable landscape framework for the region, the research will move on to the next case studies. The Room for the River will illustrate the implementation of a low carbon and spatial quality agenda, while the HS2/HS2LV will examine the beginning of the planning process in a major strategic scheme. The 'Room for the River' is an excellent illustration of climate driven regional landscape design, implemented to address the problem of serious flooding due to increased rainfall and rising sea levels. It is a national programme, aiming to achieve high water level protection in 34 locations, now and in the future, across the Netherlands (Fig.1). A holistic approach on climate and sustainability issues put landscape at the core of development without minimizing the quality of life.

The significance of a landscape adaptation programme considering water safety, but also addressing spatial quality as well as the goals for long-term sustainability and the way that local and national institutions dealt with the implementation of a large-scale scheme have made it a suitable example for the purposes of this research. The 'Room for the River' programme extends across the whole country covering urban and rural locations, however for the purposes of this paper, a focus on urban projects has been given.





Figure 1: The 34 different landscape projects of the 'Room for the River' programme illustrated on a map (Source: Ruimte voor de rivier official organisation).

The HS2 & HS2 Landscape Vision (HS2LV) case study will explore how low carbon and spatial quality landscape strategies can raise the profile of the city and act as a catalyst for social and economic growth of the whole region. It will examine the early stages of planning a major development. HS2 is a planned high-speed railway (Fig.2) aiming to link London, Birmingham, East Midlands, Leeds, Sheffield and Manchester. It is currently the largest infrastructure project of the UK and it is believed to be a significant step towards Britain's economic development. HS2LV proposes to widen the conceptual and territorial scope of the high-speed line based on a sustainable landscape way of seeing. HS2LV aims to create propositions for a linear engineering project -such as HS2- and based on a holistic approach, to attract local, regional and national interest in order to build a landscape vision for the city and the region. This case study aims to seek contradictions between the plans for an isolated engineering project and the proposal for the establishment of a symbiotic relationship between the landscape, as a way to give value to the landscape. The role that drawing and design play in the way a message is conveyed in strategic schemes will be also presented throughout this study.



Figure 2: Plan for the phase 1 (London–Birmingham) and phase 2 (Birmingham–Manchester & Leeds) of HS2 route (Source: Department for Transport, [access online, July 2016]).

The main research body consists of visits to the case study location, offering the opportunity to work, observe and interview designers and experts from the programmes. The researcher was hosted by the three major schemes, for a period of one month at each location, examining the initial concepts of the projects and how ideas were developed throughout the implementation process.

The research methods adopted in order to find out how the concepts of sustainability and sense of place have been established and implemented consist of field visits, interviews, observations and drawing examination. During the field visits the researcher was able to observe, collect plans and maps of the locations, take pictures and interview key stakeholders. Face to face interviews with experts, project managers and technicians who were highly involved at the schemes were also conducted. The data collection is similar for the three case studies and consist of documents, maps, visual material, technical documents, case study notes, drawings, images, interview transcripts and recordings.

1. Findings & Discussion

The effects of climate change on our society and the landscape have become so obvious that is impossible to ignore the visual and spatial impact they have in strategic landscape schemes. Considering the global challenges we face such as food and water security, environmental uncertainty, globalisation, demand for transport, the economic situation, and the importance of the landscape experience, 'it is clear that we need

a new response to the delivery of large scale projects' (Nikologianni et al., 2014). Data collected during the three case studies will present the connection between the landscape experience and the understanding of place (Gandy, 2011) as well as mechanisms that have integrated such ideas in the landscape infrastructure.

Planning institutions or governmental departments often 'frame' the way urban landscape strategies are delivered by informing the project and control its implementation. This research argues that the development of a new mechanism, focusing on the conceptualisation and the actions shaping the project, has a potential impact on governmental values as well as the transformation of the project's delivery and outcome. Based on findings from all the three case studies, the impact that policies and political mechanisms have on the design and the implementation process of infrastructure schemes is critical and therefore the ability to develop a range of processes integrating social, environmental and economic elements through landscape design is vital.

1.1. Understanding the land

The input given by the Landscape Observatory regarding public and governmental involvement is considered significant as, through a series of catalogues, seminars, projects and public participation schemes that have been created by the Observatory, there is now a significant change in the delivery of urban and regional infrastructure, to such an extent that a public law protecting landscape has been established in Catalonia. One of the main instruments developed by the Landscape Observatory is the 'Landscape Catalogues'.

The Catalogues, based on a combination of visuals and text, are tools that aim to raise awareness for the landscape and its value for the city and the region. Being formed by a unique territorial analysis which had never been conducted before at such a scale and consistency, the Landscape Observatory has created seven Landscape Catalogues revealing 135 different landscape characters (Fig.3) within the region of Catalonia. This rare work aims to reveal the landscape elements and deal with physical, topographical characteristics as well as values, intangible elements and dynamics of the landscape, resulting not only in a better understanding of the land by the experts, but also as a way to disseminate these ideas to the public. The paper suggests that visuals, maps and drawings can reveal information that is less obvious when presented in lists or text. Therefore, the Landscape Observatory activities have allowed the designers, civil servants and the public to feel the character of the area, get a sense of direction, as well as 'discover' hidden valleys, areas of deprivation and natural characteristics.

Thus, the Catalan society has enhanced its understanding for the value of the landscape and the Catalan government is making use of these instruments for the creation of current and future sustainable developments and policies.

Els paisatges de Catalunya

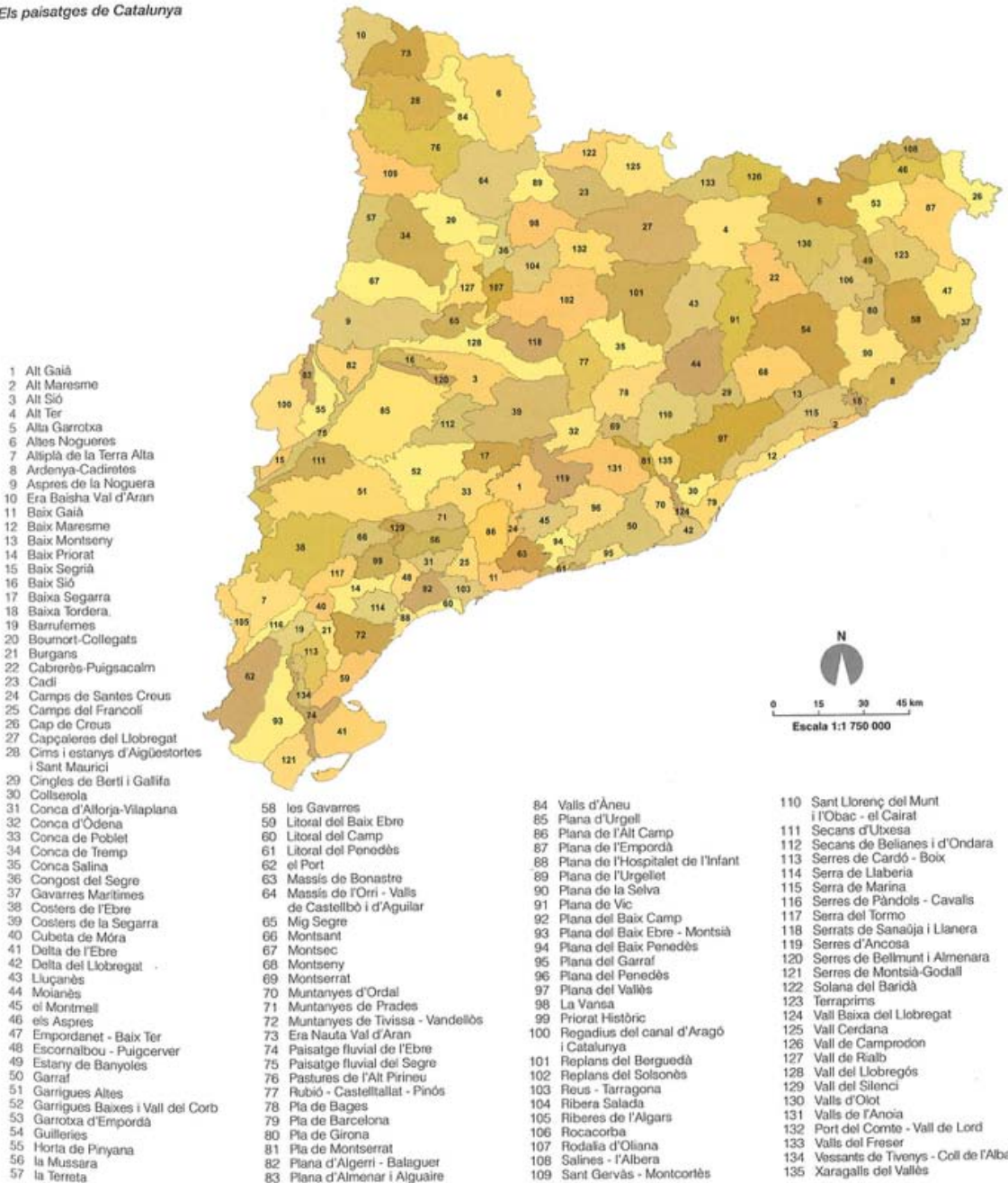


Figure 3: 'Els Paisatges de Catalunya'. An example of the 'Landscape Catalogues'. The 135 different landscape characters located on the map for the region of Catalonia by the Landscape Observatory (Source: Landscape Catalogue de l'Ebre, pp.29).

1.2. Creating a landscape vision

Both the Landscape Observatory, with the use of maps and 'Landscape Catalogues', and the Netherlands with various design processes, are pioneer projects involving landscape design on regional scale. However, it has been found that there are many cases where drawings end up being replaced by text, and pictorial forms by verbal ideas. It is important to highlight that the larger the scale the more difficult is for people to understand it and therefore for sustainable holistic schemes to be 'spatially' developed. Using findings from the three case

studies, this research argues that effective designs are important for the decisions made in the implementation of an urban or regional landscape strategy.

The creation of a narrative that blends the landscape and the city is a crucial element able to support the overall project and integrate sustainable, social and economic growth. Looking at the high-speed railway line programmes of HS2 and HS2LV, the creation of a vision, provided by HS2LV, has managed not only to secure sustainable development for the city, but to establish a future proposal for the whole region. While HS2 was focusing on the idea of a railway line that due to the existing structure and policy was going from the macro scale of the scheme right down to a very detailed level, HS2LV is proposing that a narrative, sense of place and a design concept for a sustainable place should be part of this initial framework. The creation of the diagrammatic drawing (Fig.4) presenting values of the land, environmental and social elements and a range of value judgements draws attention to particular areas of the major infrastructure. Using various 'general' or 'abstract' drawings like the one presented at figure 4, HS2LV has managed to give a series of exciting possibilities for the region, without micro managing specific spots and areas in the land. Using a less 'threatening' medium for the community has created a narrative and a vision for the landscape, engaging with communities and changing their perceptions.

HS2LV is considered an impactful for the governmental policy of the UK scheme, showing a different image of the region and integrating environmental and social ideas for the city of Birmingham and its surroundings through landscape design.

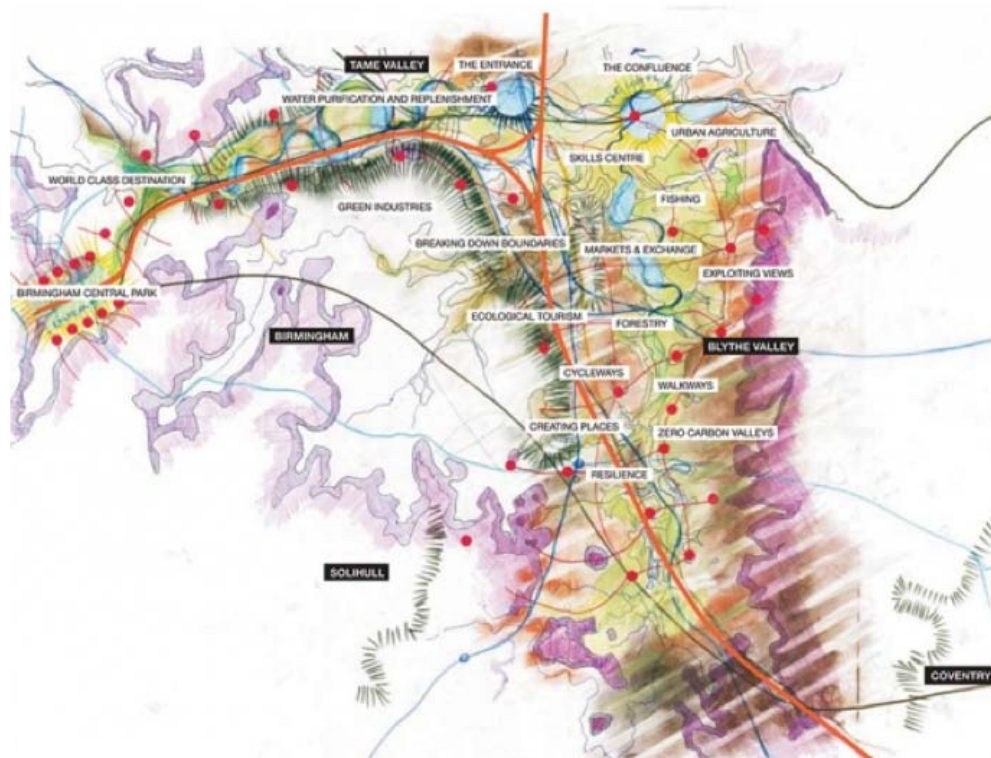


Figure 4: Drawing created to reveal the landscape identity and illustrate an iconic landscape for HS2LV proposal in the route between London-Birmingham (Source: Kathryn Moore personal archive).

1.3. The implementation of a narrative

Establishing a vision of a low carbon and quality landscape and communicate these ideas to the broader audience is not a simple task. However, this research agrees with Lutz (2008) in the notion that is possible to describe an attractive and sustainable place and suggests that the most effective visions are conveyed through design. Examining the climate adaptation scheme of the Room for the River, this section shows how the concepts of low carbon and spatial quality can be integrated in a landscape design and what the key elements of successful implementation are. Findings show that the delivery of such complex concepts requires in-depth understanding and identification of the main ideas. As happened in the Room for the River programme (the Netherlands), the concepts of spatial quality and sustainability were interpreted as water safety, hydrological efficiency, environmental stability and sense of place. Based on a clear understanding of the main concepts and with continuous input from the designers and the public, the outcomes of this strategic development were tremendous.

Looking at the urban project between the oldest Dutch city, Nijmegen and the town of Lent, the dyke relocation that was developed by the scheme (Fig.5) has resulted in the creation of a peninsula and two new waterfronts for the city. This project is a perfect illustration of a sustainable urban scheme where the landscape is the context of the development embedding different low carbon and aesthetic elements in the design.

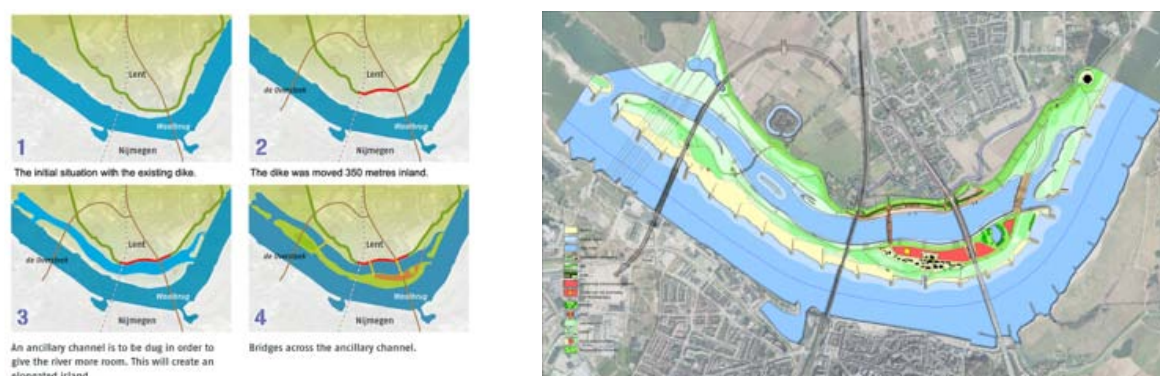


Figure 5: On the left, the dyke relocation in Lent and the creation of a new peninsula for the city of Nijmegen, one of the projects of the Room for the River Programme. On the right the final plan of the project (Source: city of Nijmegen).

Design and drawing have played a significant role in this outcome, as through them the ‘intangible’ concepts of sustainability and sense of place could be ‘materialised’ by the civil servants, management teams and the public. This has resulted in an in-depth understanding of the overall vision, and the better communication between the different project teams. As shown in Figure 6, the delivery of the Nijmegen - Room for the River scheme has enhanced the social, cultural, entrepreneurial and touristic value of the city and the region, without compromising the environmental and aesthetic assets. Visualisations such as the one below (Fig.6) are a significant help in the expression of the narrative, showing how a low carbon and environmental concept can also provide quality of space, walking, cycling, social and cultural activities without focusing only on the engineering and the technical delivery of the scheme. The outcomes of this research suggest that the

landscape project of Nijmegen is turning the ‘necessity’ of addressing water levels into an opportunity for enhancing spatial quality and sustainability.



Figure 6: Visualisation of the Nijmegen project, Room for the River, illustrating a low carbon vision of the city, where the concept of water safety has been integrated to a holistic landscape approach. (Source: city of Nijmegen).

Conclusions

Considering the landscape as the context for sustainable urban and regional developments this research has come to important conclusions. It is suggested that the successful delivery of a landscape strategy can be strengthened by the establishment of a holistic mechanism which integrates the landscape idea, the environmental and social assets as well as a vision for their implementation. The knowledge of the existing landscape is vital not only in order to meet technical challenges, but mainly because this will result in a truly sustainable and visionary plan for the future. The evidence of low carbon and spatial quality implications in strategic designs has revealed that such concepts are difficult to understand, although necessary to integrate in a landscape strategy.

Findings on the way drawing and visuals inform strategic design and planning, enforce the notion that good understanding of low carbon and quality concepts is crucial for the development of the design process and has significant consequences in the communication of the landscape narrative. Identifying the lack of articulation of the landscape concept in legislation and in guidance, the study highlights that policies and legislations are a way to enhance the principles of design, low carbon and spatial quality, and persuade politicians and civil servants to consider the vision and the outcomes of each landscape scheme from the very

beginning. In addition, the integration of a design-led approach in the project framework and certain policies will create a new way of thinking, revealing environmental, social and cultural characteristics that are not able to be illustrated during the existing infrastructure process. The ambition to embed a sustainable approach into urban and regional strategies will provide a strong conceptual basis for arts-led low carbon practice and will support a new way of thinking, integrating climate issues and global challenges in the landscape agenda.

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References

- Gandy, M., 2011, *Landscape and infrastructure in the late-modern metropolis: The New Blackwell Companion to the City*. Blackwell Publishing, pp. 58-65.
- Lutz, S., 2008, *Shared Space, Spatial Quality Places that attract people*, in F. Province, ed., *Groningen PlantijnCasparie*, Groningen.
- Nikologianni, A., K. Moore, and P. Larkham, 2014, *Low carbon as a critical element in landscape regional infrastructure*, Paper presented at the 'Planning for Sustainable Urban Form' conference, 12-14 November 2014, Swedish School of Planning, Blekinge Institute of Technology, Karlskrona.
- Stephenson, J., 2010, *The Dimensional Landscape Model: Exploring Differences in Expressing and Locating Landscape Qualities: Landscape Research*, v. 35, pp. 299-318.
- Yuan, H., P. Zhou, and D. Zhou, 2011, *What is Low-Carbon Development? A Conceptual Analysis: 2010 International Conference on Energy, Environment and Development - ICEED2010*, v. 5, pp. 1706-1712.