Introducing alternative project frameworks through landscape design

Dr Anastasia Nikologianni[a*], Prof. Kathryn Moore[a], Prof. Peter Larkham[b]

[a]*School of Architecture and Design, Birmingham City University, UK*
[b]*School of Engineering and the Built Environment, Birmingham City University, UK*
Birmingham City University, City Centre Campus, 5 Cardigan Street, B4 7BD, UK
natasa.nikologianni@gmail.com

Abstract

In an era of globalisation and environmental instability, the 'landscape' is often perceived merely as the physical context rather than as the core element to establish a vision for a whole region, create values, share memories and play a key role addressing the global challenges we face. The focus of this paper is to enhance and emphasise the impact that spatial strategies have in sustainable design and how landscape practice can be instrumental in future-proofing and protecting our cities. The paper forms part of a wider research project examining innovative landscape strategies across Europe, assessing the extent to which low carbon, sustainability and spatial quality can be delivered effectively at the urban and strategic scales. We argue that a sophisticated process needs to be put in place in order to be able to deliver landscape schemes that appropriately identify and address current environmental and social challenges.

This paper discusses the outcomes of two major pioneer landscape infrastructure projects in the Netherlands (the 'Room for the River' and the 'New Dutch Waterline') that have demonstrated new ways of engaging with both climate and aesthetic elements during the conceptual and implementation phase of a strategic scheme. The Room for the River is a landscape adaptation programme addressing water level management, while the New Dutch Waterline aims to regenerate inundation sites by introducing cultural and social activities while preserving the landscape infrastructure. Exploration of the impact that policy and legislation have on the landscape demonstrates that governance plays an important role in ensuring the success of a strategic landscape project. An investigation of urban and rural projects dealing with climate adaptation through these two projects shows that a multidisciplinary focus is a significant factor in the development of an effective project framework.

We conclude that the establishment of a project framework, clearly supported by legislation and policy, will make a real difference in the way that professional practice and politics deal with landscape infrastructure. The integration of environmental and quality concepts from the early stages of the project process, and the attention to the importance of design, can ensure effective implementation and smooth communication during the development of a landscape scheme, leading to future resilience.

Keywords: landscape design; sustainability; climate adaptation; project framework; flooding

1. Introduction

Research observing and evaluating strategic landscape schemes across Europe that have developed pioneer ways of envisioning, processing, managing and delivering large-scale projects has resulted in the identification of best practices that enhance sustainability and spatial quality in regional landscape-based schemes. As Stephenson [1] 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'. The interpretation of low carbon is often challenged, with practitioners, researchers and others questioning whether it is based on activities, lifestyles and voluntary behaviour change or in policy frameworks influenced by regulatory forces [2].

The significance of this paper comes from the examination of two case studies in the Netherlands, the Room for the River (*Ruimte voor der Rivier*) and the New Dutch Waterline (Nieuwe Hollandse Waterlinie), which demonstrate how water safety, hydrological efficiency and sense of place contribute to low carbon and design quality. Through identifying the lessons learned, the real benefits of a well-thought-out and sustainable design as well as the importance of the governance in decision making, we explore how the two schemes have generated an innovative way of dealing with the strategic scale and how this affects the landscape infrastructure and the environmental scene in the Netherlands. We identify a series of innovative steps that these strategic projects have followed from establishing the vision, integrating design at an early stage, to the interaction of governance and public participation and the successful delivery with further outcomes to the regional or national planning process. The whole project process is conceptualised as an alternative to the common current project frameworks, resulting in large-scale schemes that effectively address environmental challenges, behavioural change and quality of space.

2. The vision for sustainable strategic spatial schemes

Introducing a powerful vision for a sustainable landscape project that deals with environmental challenges while, at the same time, enhancing social and cultural characteristics and delivering economic benefits is not an easy thing. Nevertheless, we suggest that it should be one of the fundamental steps in order to bring landscape design to the forefront of sustainable development. The 'design concept' for landscape, as it also might be called, can describe the story of a place, make it inspiring, attractive and appealing to visitors and locals.

The Room for the River and the New Dutch Waterline are two pioneer national landscape programmes dealing with climate change, water level rise and quality of space. Their focus lies in the effective delivery of large-scale developments that address environmental challenges and educate people about the landscape.

2.1. Room for the River

The Room for the River is a climate adaptation programme that was introduced as an alternative to traditional planning approaches and was intended to form a more sustainable way of dealing with increased rainfall and rising sea levels. The serious flooding that affected the Netherlands in

1993 and 1995 was the trigger for a change in the planning and management of the river catchment areas (Fig. 1, Appendix), resulting in the development of this programme. It is a national-scale design strategy, ensuring a high level of protection against rising water levels in 34 locations across the Netherlands, while introducing a vision for a carbon-neutral life. Aiming to improve the overall environmental quality in the river region and having developed a method for the assessment of the designs proposed, this scheme is also a good example of how the low-carbon concept can be covered in spatial strategies.

2.2. New Dutch Waterline

The 'New Dutch Waterline' is also a national landscape programme consisting of approximately 60 different fortifications across the Netherlands (Fig. 2, Appendix), focusing on the preservation and revitalisation of the landscape infrastructure and aiming for enhanced sustainability and quality of space. The fortification network was originally designed in the 19th century as a military defence system to enable controlled inundation through sophisticated landscape engineering, but was never used, leaving a historic and cultural landscape now in need of revitalisation.

The vision of this scheme was to create new values for the fortifications, aiming to preserve and regenerate the existing structures while improving their visibility and accessibility to the existing landscape. The successful implementation of the programme, together with the emphasis on sustainability and landscape quality, has resulted in improvement of the existing historical landscape, creation of valuable public space and a unique identity to the landscape; and has led to nomination as a tentative UNESCO site.

The two Dutch case studies are successful examples of a visionary narrative, introduced by landscape design and expressed through drawings and text, a process that allowed the vision to be developed and transformed over time. Designs embedded into the project process have created beneficial outcomes for public engagement and delivery, by improving communication and visualisation of the landscape ideas. The two schemes demonstrate the significance of a landscape concept presented visually, and the need for the landscape project process to be perceived in a different way than is commonly the case today, blending ideas with drawings and text following a vision for sustainable future.

3. Project process framework

The examination of the two case studies presented here reveals an innovative project process that builds upon the proposed vision. The structure followed by both Dutch schemes introduces an alternative way of working, compared with the common landscape infrastructure project frameworks. The establishment of a vision has secured environmental uncertainties, and embedded key ideas such as low carbon and spatial quality in project delivery.

On examining the frameworks evolved by the pioneer studies, we suggest that the schemes were not only planned to deliver a piece (or pieces) of infrastructure, but to create sustainable places and cover environmental and societal needs, paying respect to the cultural aspects. Looking and evaluating the landscape, the area and the society, a series of concepts and ideas have been identified resulting in a new combination and effective use of methods and techniques (eg. legislation, continuous evaluation, timing) that follow an overall alternative project framework.

A sophisticated process focusing on spatial understanding, a different way of 'conceptualising and shaping the project', the integration of key ideas into policies and politics and the importance of early planning at the implementation and delivery of a large-scale scheme, are all important elements for the regional design project and have played major roles in both the Room for the River and the New Dutch Waterline. In particular, a framework focusing on the conceptualisation and the actions shaping the scheme's vision has the potential to affect governmental values as well as decision making, with consequent impacts on project delivery and outcomes.

Regional- and strategic-scale schemes are often conceptualised, established and delivered by the project management or administration process, controlled by governmental institutions. They often follow a 'common' and 'conventional' process of management and delivery, and it seems to be only when there is multidisciplinary interest and a pressure for a low-carbon vision, as happened at the two case studies, that an alternative project process is likely to emerge.

We suggest that a sequence of processes referred here as 'shaping the project/alternative project framework' needs to be established and introduced for all major infrastructure schemes. Such administrative frameworks can develop on a strategic scale (as with the example projects discussed here) and can form a significant part of decision making, securing the way in which quality elements can be spatially implemented. Van den Broeck [3], discussing administrative processes and policies, has suggested that 'it is a challenge to develop a new kind of "frames" and a new way to use them for judgement and decision making aiming at spatial quality, however these frames [are meant to] to ensure legal certainty'. As shown by the successful outcomes of the Dutch projects examined here, such frameworks are likely to secure the effective delivery of a sustainable scheme and become a powerful example of large-scale implementation.

3.1. Key points of these project frameworks

Specific elements integrated to their project frameworks have impacted positively on the delivery of the programmes of the two innovative strategic schemes presented here. We suggest that the elements identified play a major role in the way in which a vision is communicated and understood during the project development. The key practices identified are: vision, early integration of important messages, communication, continuous evaluation of the project process, policy and legislation, governmental support, education and awareness, active and continuous public engagement and use of design as a driver for business regeneration and economic outputs.

One of the main outcomes of the study is that concepts such as spatial quality and low carbon, that may be challenging owing to their elastic and variable definitions, can be effectively delivered when they are properly planned and integrated in the earliest stages of a landscape project. The importance of 'timing' for key messages in a landscape design secures their integration within the overall vision and highlights the importance and benefits of their delivery. For example, the Room for the River demonstrates a variety of key actions based on a strategic project framework. This framework focuses on key concepts such as hydrological efficiency and spatial quality, the way in which they have been carried through from the beginning (concept) to the

implementation phase and the actions of the stakeholders involved.

Another vital element in the project framework, but one that is often introduced at a later stage, is strong communication. A less effective communication strategy within the project management can cause implementation delays and result in a diversion of its environmental scope. In strategic schemes, the diverse stakeholders need to be clear about the vision and then use tools, communication channels, drawings and vocabulary, introduced through the project framework, that will help them transition from the conceptual to the implementation phase.

Early integration of important ideas, a solid project framework and legislation have significant impacts on decisions made during the landscape process and result in new ways of project delivery. Successful integration of these elements in the 'routine framework' of a landscape scheme would enhance landscape identity, delivering a scheme with strong environmental messages and producing enhanced landscape quality in the perceptions of its users.

4. Different approaches in the Dutch projects

Individual methods, such as those described above, have probably been used in previous landscape schemes, however it is their combination in addition to the creation of a strong policy framework guarded by external expert teams and governmental institutions that has resulted in the successful implementation of the pioneer schemes Room for the River and New Dutch Waterline. Their landscape process demonstrates how design can change public opinion on sustainable landscapes and the way in which policy and legislation secure project delivery.

Policy

The Dutch system appears to be quite progressive in the integration of such concepts, but for this to be implemented, policies need to be in place to support the management of the process [4]. The legislation introduced and facilitated the schemes, settled design at the core of the process and helped in the creation of a unique team to evaluate the projects' progress regarding spatial quality. The fast pace with which the project framework is often established makes it challenging for such concepts to be properly introduced, therefore the innovative method of a dedicated team has offered significant outcomes to this point. The European Climate Adaptation Platform explains that 'the old policy [in the Netherlands] was based on discharging surplus water to the sea as quickly as possible, the new policy became to first retain water, then store the water and finally discharge the excess water. The new water policy was later linked to nature development and implementation of the EU Water Framework Directive' [5]. Similarly, the two projects examined here fulfil legal requirements with key elements of water safety, secured their integration within the process and their implementation in the landscape scheme.

Stakeholder Collaboration

The programme framework developed for the Room for the River illustrates how the different stakeholders communicated and collaborated in securing the goals set by the administration. It deals with the integration of conceptual ideas being developed across the different projects and the way in which

they can be secured during the landscape process. The main bodies involved at a strategic scale are illustrated in Fig. 3 (Appendix) and are the 'Programme Office', the 'Landscape architecture team embedded in the Programme Office', the 'Water management team', the 'Spatial Quality team', and 'Deltares', the external quality and sustainability team [4]. Additional institutions, organisations and individuals have also taken part in various stages of the programme.

The Programme Office and the individual project teams are responsible for the final decisions; however the other bodies participating in the programme, such as Deltares, the external Quality team, evaluate specific quality elements such as water efficiency, landscape quality, environmental elements and more. The Landscape team has a continuous communication role between the Programme Office and the Quality team, supporting the project development. The Water Management team is embedded in the main structure of the scheme and it is responsible for the evaluation of water safety, sustainability and low carbon elements. Deltares is responsible for a second evaluation of the environmental aspect, and also secures the water management process.

Addressing all scales

The focus of processes has followed a sequence from the broad scale, through various intermediate stages, down to the very detailed characteristics of a specific location.

Demonstrating the close involvement of governmental institutions not only in strategic but also in local scale for the Room for the River, it was found that the Ministry of Infrastructure and the Environment established an administrative collaboration that was set as a partnership agreement with the Ministry of Economic Affairs, Agriculture and Innovation, Werkendam City Council (near Noordwaard - one of the 34 project locations), Rivieranland Water Board, Province of North Brabant (province of Noordwaard) and the Department of Public Works South Holland [4].

Design as a major communication tool

Design needs to be established as a requirement of the project framework for the scheme to be able to respond appropriately to the setting and the social and cultural needs of the area. Drawings have a significant role in this strategy, communicating ideas and engaging stakeholders throughout the process. Both national schemes had a close relationship with designers and a Quality team, aiming to secure not only function but also sense of place and public engagement. More specifically, the concepts of spatial quality, low carbon and design had not been used in the same holistic way in such large-scale projects before [4], which makes it an innovative conceptual framework in landscape strategies. Given the success of the two projects, this has a major potential impact for the future spatial planning and design policy of the Dutch government.

5. Why they are successful

We suggest that the delivery of the landscape schemes is an outcome of their success in creating a holistic plan and project framework embedding all the different elements presented above in a way that all play a key role in the landscape design process. We argue that the political dimension facilitates the landscape project, and impacts on political actions related to the landscape design and the whole region. A series of important steps (clarification,

shaping the project, politics, policies, institutional involvement, and timing) are necessary in order to secure the delivery of the key qualities and elements. The development of alternative project frameworks by the national programmes in the Netherlands would not have been achieved without strong support from the government and the creation of new legislation, securing a smooth delivery of the landscape projects. Whether dealing with historic landscapes and sensitising the society or having the desire to create a landmark project, addressing climate change, while the same time enhancing economic and social values, these strategic developments clearly had the effective support of the government before and during the project process.

Highlighting the importance of procurement processes in the implementation of landscape design, Moore [6] has stated that 'to have any real chance of providing a sustainable and lasting blueprint for the landscape, this way of working needs to become wholeheartedly absorbed into all of the decision making institutions and organisations responsible for policy, strategic or regional planning at a national or international level'. The projects discussed here have illustrated that legislation and politics in relation to landscape design can be an effective way to engage with the land and the region and guide the development of a new way of thinking, as well as acting both in public and private sectors. Spatial quality, water safety, hydrological efficiency, community engagement and landscape preservation are addressed in the policies and legislation of these national programmes, helping to ensure their integration within the narrative and therefore their successful delivery within the scheme [4]. Increasingly it is recognised that 'there is no alternative for countries but to incorporate low carbon measures in their development policies. The reality of climate change demands it, and there are also clear benefits in pursuing such for policies' [7]. Both the Room for the River and the New Dutch Waterline have made significant progress in the interrelation of politics and the landscape, changing public opinion and establishing specific laws for the landscape scale in relation to climate challenges.

6. Conclusion

Successful delivery of sustainable strategic schemes is not a one-way process, and requires the engagement of various actions. We suggest that policies, legislation and the establishment of a project framework all have significant impact on the extent to which key ideas are being delivered at the strategic scale, and secondly that design plays a significant communication and interpretation role for those concepts, allowing better integration in large-scale strategies.

The establishment of an alternative project framework that addresses the needs of each project individually is considered necessary, but it requires support from policy and governmental legislation, especially on a broader scale. The suggestion for such a framework focuses on recognition of the increasing importance of concepts such as low carbon, climate change, spatial quality and visual representation for improved communication. Therefore a process that will successfully provide integration of all these individual elements to a large-scale scheme will be a step towards long-term and real sustainable implementation and a formula to more clearly address climate challenges through landscape architecture.

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Appendix

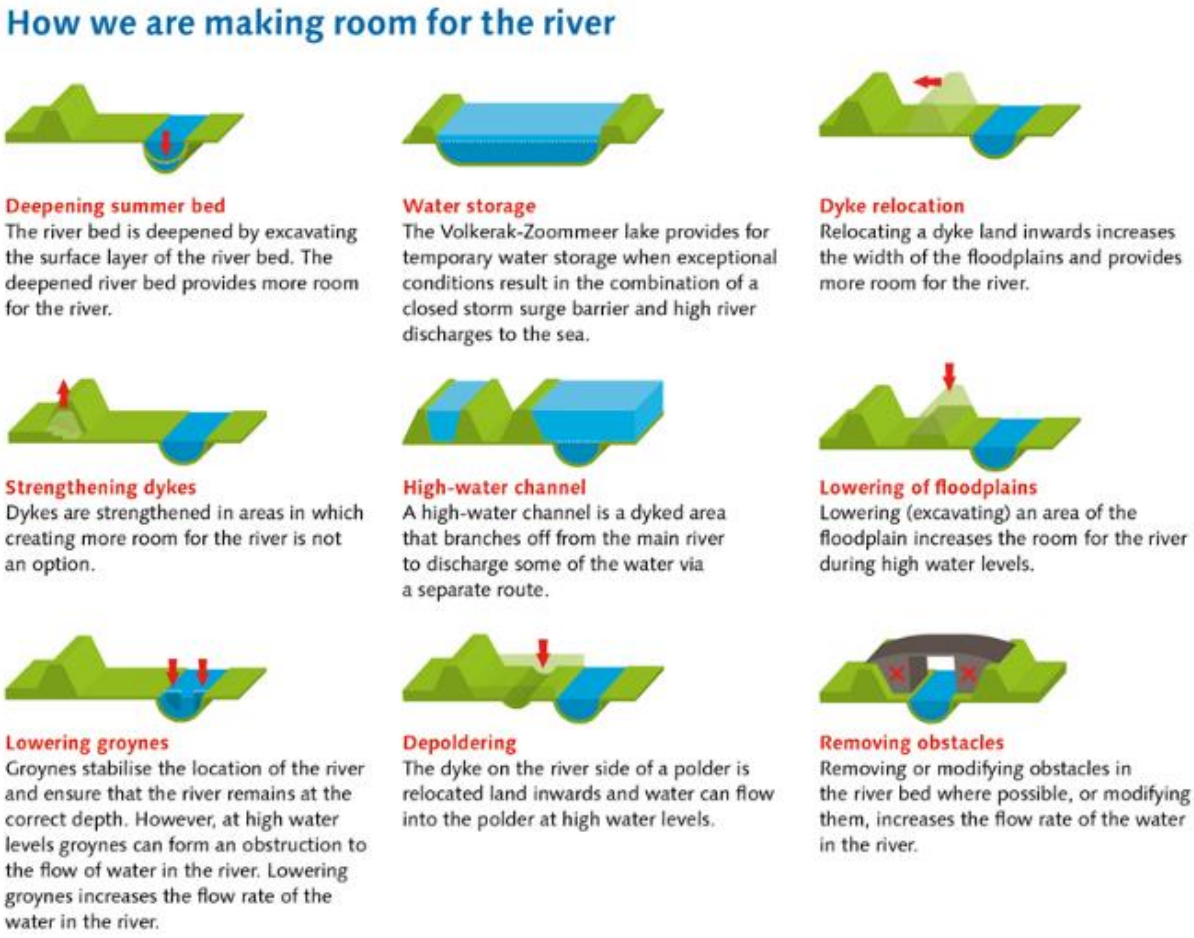

Fig. 1. Diagrams demonstrating the nine different methods proposed by the Room for the River programme addressing water safety. The methods were used in considering the location, the geographical characteristics and social impact. Source: Room for the River.

Fig. 2. Left: Map of the 'New Dutch Waterline' landscape scheme showing the defence line and the locations of the fortresses that have now adopt different uses. Right: Showing the whole defence line, the locations around the fortresses that could have been inundated in the past and are now regenerated open areas. Source: public material – collected from Water Museum, the Netherlands.

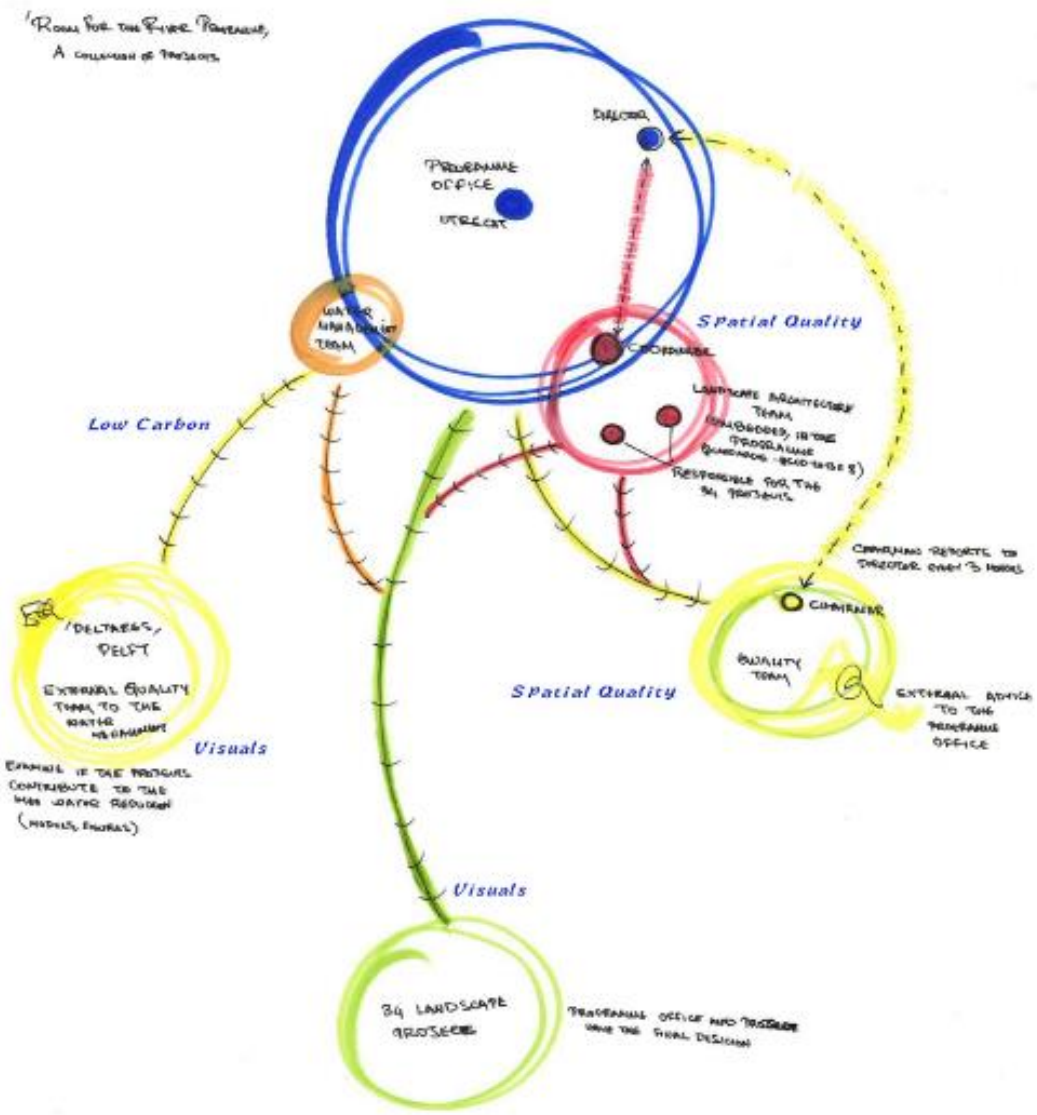

Fig. 3. Programme framework for the Room for the River illustrating the main stakeholders participating in the scheme (Author's based on interviews with staff from the Room for the River).