

Achieving flood resilience through building with culture: Integrating cultural heritage and flood risk management in the cases of the Stenendijk and Grebbedijk



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Colophon

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Abstract

There is a growing need for the adaptation of cultural heritage, as its preservation is threatened by climate change. The domain of flood risk management can facilitate this adaptation by including ambitions for cultural heritage, as a component of spatial quality, in flood risk management projects. However, achieving this integration remains a governance challenge, as it is unknown how integrative solutions are created in practice. This study has shed light on this issue, by focussing on the policy instruments that are used as the means to achieve the integration of cultural heritage in flood risk management projects. Therefore, the aim of this study is to explore how policy instruments can enable the integration of cultural heritage management and flood safety in flood risk management projects. To achieve this aim, a qualitative research strategy has been adopted which involved a comparative case study concerning the projects Stenendijk and Grebbedijk. These flood risk management projects are part of the Dutch dike reinforcement programme (*Hoogwaterbeschermingsprogramma*) and are considered as good practice projects for integrating cultural heritage as part of flood risk management measures. The outcome of this study involves the creation of a conceptual framework which includes the policy instruments that enable the creation of these integrative solutions. Subsequently, this conceptual framework assisted in the comparison of the case studies. As a result of this comparison, recommendations have been made for the improvement of policy instruments based on the lessons learned from the case studies.

Keywords: Policy instruments, cultural heritage management, flood risk management, spatial quality, NATO-typology

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List of Abbreviations

Waterboard DOD – Waterschap Drents Overijsselse Delta

Waterboard V & V – Waterschap Vallei & Veluwe

Chapter 1 – Introduction

1.1 Cultural heritage in flood risk management projects

Climate change poses a threat for the conservation of cultural heritage. This threat is mainly constituted by sea-level rise, floods, changing temperatures, droughts, changing humidity and more extreme weather events (Fatoric & Seekamp, 2017; Fatoric & Biesbroek, 2020). This presents a need for adaptation of cultural heritage to decrease deterioration or the potential loss of cultural heritage due to these impacts. These subjects have gained increased interest in academic literature on heritage management (Fatoric & Egberts, 2020).

A domain that can both benefit from, and enable, the protection of cultural heritage from the hazards of floods is flood risk management. Cultural heritage can provide support for flood risk management measures, by providing inspiration and knowledge on the techniques and materials for the design and construction of these measures. Many historic structures, such as dikes, embankments, and canals, are still relevant for Dutch flood risk management today. The adaptation of these structures and objects to face the threat of climate change can also benefit flood risk management by increasing flood risk safety. Simultaneously, adaptation of cultural heritage can allow for its preservation by enabling restoration as well as ensuring maintenance (Projectbureau Belvedere, 2010). However, to profit from these co-benefits for cultural heritage and flood risk management, increased integration between these policy domains is required (Egberts & Renes, 2020).

A policy trend in Dutch flood risk management that enables this is the increased integration between flood risk management and spatial planning. This policy shift, also referred to as the ‘spatial turn’, allows for the inclusion of other policy ambitions in flood risk management developments (Ruiten & Hartmann, 2016). As such, the development of space for the use of flood risk management also creates opportunities for the preservation of cultural heritage. Moreover, this allows for the enhancement spatial quality because cultural heritage is conceived as a component of this spatial quality in Dutch flood risk management (Alphen, 2020). In a recent flood risk management programme, ‘Room for the River’, there was a consensus that the integration between flood risk management and spatial planning would result in increased possibilities for the improvement of local and regional spatial qualities (Busscher et al., 2018). This led to the adoption of ‘conserving and improving spatial quality’ as the second policy goal of the programme, besides the goal of improving water safety. Busscher et al. (2018) argue that the incorporation of spatial quality in the Room for the River programme has resulted in ‘institutionalized attention’ for spatial quality which led to effective organisation of spatial quality in the Room for the River programme. As a part of spatial quality, this second policy goal highlighted the importance of preserving cultural heritage (Alphen, 2020). Therefore, the dual objective has proven to be an important integrator for cultural heritage in flood risk management projects (Rijke et al., 2012).

In contrast to the Room for the River, there is less institutional attention for the integration of spatial quality within the Dutch flood protection programme (*Hoogwaterbeschermingsprogramma*) (HWBP). The sole objective of this programme is to increase flood protection. The HWBP is the largest flood risk management programme in the Netherlands since the Delta programme. The latter is known for the creation of the world famous ‘Delta Works’. The HWBP focuses on dike reinforcement projects as well as the renovation of sluices and other hydraulic defence works that are to be improved before 2050 (Hoogwaterbeschermingsprogramma, 2019). This entails that the HWBP is a more regular programme compared to the smaller Room for the River programme. The Room for the River programme formed an exception on the traditional flood risk management strategy of the Netherlands as it promoted to ‘live with the water’ rather than to ‘fighting the water’ (Hoogwaterbeschermingsprogramma, 2019; Alphen, 2019). Within the HWBP, spatial quality is only mentioned as a sub-goal of the programme, instead of being included as central concern. In addition, the focus is no longer on the improvement of spatial quality but merely on its conservation (Hoogwaterbeschermingsprogramma, 2019). It is generally assumed that spatial quality will be considered by policy makers and flood risk management practitioners since its importance was clearly underlined in the Room for the River programme. Whether this is actually taken into account, remains unclear (Busscher et al., 2018). To explore how spatial quality, and cultural heritage as a component of spatial quality, is taken into consideration in the HWBP, this study will elaborate on the dike reinforcement projects of the ‘Stenendijk’ and ‘Grebbeijk’, which are situated in the Netherlands.

A focus on policy instruments that are applied in these projects for the integration of cultural heritage in flood risk management can assist in shedding light upon this issue. Policy instruments are the means or tools used by governments to reach their policy objectives, such as, integration (Verweij et al., 2021). Previous research by Verweij et al. (2021) shows that multiple policy instruments have been applied in the Room for the River programme to integrate spatial quality in flood risk management. Similar to the integration of spatial quality in flood risk management projects, a focus on the applied policy instruments for integrating cultural heritage and flood risk management provides a viable approach for understanding the process of integration on the project level (Verweij et al., 2021). The HWBP does not include the explicit policy goal to enhance spatial quality as in the Room for the River programme. Therefore, it remains unclear which policy instruments are currently applied to integrate cultural heritage in flood risk management projects of the HWBP (Hoogwaterbeschermingsprogramma, 2019). Moreover, exploring how cultural heritage is integrated in flood risk management through the applied policy instruments allows for an insight into how the much-needed adaptation of cultural heritage can be achieved to reduce the impacts of climate change (Fatoric & Egberts, 2020; Heeres et al., 2016).

1.2 Research aim and research questions

The integration of cultural heritage through the promotion of spatial quality in flood risk management can result in co-benefits for both sectors (Fatoric & Egberts, 2020). Flood risk management can provide the means to preserve cultural heritage values whereas cultural heritage can provide historical narratives, inspiration, and information to create flood risk management measures. Additionally, the inclusion of cultural heritage objectives in flood risk management project can lead to increased public support for the project (Projectbureau Belvedere, 2010). However, cultural heritage may also be perceived as a barrier to develop flood risk management measures. There is often a focus on preservation that can limit opportunities for their implementation. This makes the relation between cultural heritage and flood risk management policies complex (Egberts & Renes, 2020). To create an increased understanding of this complex relation, and how integration between both domains can be achieved, this study will focus on the policy instruments (Stead, 2021). Therefore, the aim of this study is to explore how policy instruments can enable the integration of cultural heritage management and flood safety in flood risk management projects. To achieve this aim, the following questions will be answered:

Main Research Question:

How can policy instrument mixes enable the integration of cultural heritage management in flood risk management projects in the Netherlands, and what lessons can be learned from the cases of the Stenendijk and the Grebbedijk?

Secondary research questions:

- How are cultural heritage management and flood risk management related, what are key trends, and what are barriers and opportunities for integration?
- What are policy instruments and which policy instruments can help to integrate spatial quality and culture heritage values into flood risk management projects?
- Which policy instrument mixes are applied in the cases of the Stenendijk and the Grebbedijk to integrate cultural heritage into the flood risk management projects?

1.3 Theoretical approach

To gain an improved understanding on the governance challenge of integrating cultural heritage and flood risk management, this study will elaborate on multiple theoretical insights on the relation between both policy domains. First, the key trends in the policy domains of flood risk management and cultural heritage will be outlined. This will provide an insight into how flood risk management and cultural heritage have increasingly become integrated with the policy domain of spatial planning (Ruiten & Hartmann, 2016; Janssen et al., 2017). The insights that are gained from this will lead

to the identification of multiple governance challenges and opportunities for the integration between flood risk management and cultural heritage. Second, a focus will be made on the policy instruments for integrating cultural heritage in flood risk management projects. To make sense of the various policy instruments applied in flood risk management, a typology of instruments based on Hood (1983) will be developed for this study. This typology consists of four categories of instruments: organization, nodality, authority, and treasure. At last, this topology will be operationalized for this study. This has been achieved by identifying multiple policy instruments for integrating cultural heritage in Dutch flood risk management from policy documents of the HWBP, as well as documents from the projects of the Stenendijk and Grebbedijk. Subsequently, insights from academic literature on each of the policy instruments will be discussed to create a comprehensive overview of instruments that are applied to integrate cultural heritage and flood risk management.

1.4 Research Design

The research design for this study involves a comparative case study concerning the cases of the Stenendijk and Grebbedijk. First, the Stenendijk project is initiated by the waterboard Drents Overijsselse Delta (DOD) and is located in the province of Overijssel. The project involves the preservation and restoration of a historic stone wall as part of the dike reinforcement projects (Waterschap Vallei & Veluwe, 2019). Second, the Grebbedijk project is initiated by the waterboard Vallei and Veluwe (V & V) and is situated between the towns of Rhenen and Wageningen in the province of Utrecht. The project involves a dike reinforcement as part of a larger regional development. Within this project, a former fortification that originates from 1785 will be heightened to ensure flood safety (Waterschap Drents Overijsselse Delta, 2019). A qualitative research strategy has been adopted to explore insights from each of the case studies. The data for this study has been collected through a multiple method approach. First, a policy document analysis has been conducted to collect secondary data on both projects. Second, 10 semi-structured interviews were held with actors that were involved in the projects. Both the policy documents and the interview transcripts have been analysed through deductive and inductive coding, using the Atlas.ti software.

1.5 Relevance of the research

Although there is progress on understanding the relation between cultural heritage and climate adaptation, Fatoric & Biesbroek (2020) state that research on this relation “is still relatively weak”. The majority of scholars focus on the assessment of climate risks and vulnerabilities of cultural heritage. Although existing studies are critical in raising awareness for climate change, they provide limited information on the governance challenges accompanied by the integration of cultural heritage and climate adaptation (Fatoric & Biesbroek, 2020). Therefore, more extensive research is required into possible trade-offs between environmental and cultural heritage

objectives (Fatoric & Egberts, 2020). This knowledge gap is shared by Fatoric & Seekamp (2017) who add that it is unclear if, and how, implementation of cultural heritage adaptation is taking place. Therefore, this research attempts to develop an understanding of how cultural heritage adaptation is taking place in practice by focussing on how policy instruments may enable the improved integration of cultural heritage in flood risk management projects. Using policy instruments for the theoretical scope of this study is relevant as current literature only provides few insights in the practical application of policy instruments for climate adaptation (Mees et al., 2014). Moreover, the theoretical focus on policy in spatial planning in general is ‘underdeveloped’ and ‘conceptual thinking about policy tools in spatial planning is relatively limited’ (Stead, 2021).

Currently, there are many uncertainties for planners, decision-makers, policy makers and practitioners in the domains of cultural heritage and flood risk management about how to create co-benefits for both fields. On the one hand, “the environmental benefits of cultural heritage are poorly considered in decision-making processes” and there is a lack of knowledge about how to integrate climate adaptation policy in cultural heritage management (Fatoric & Egberts, 2020). On the other hand, practitioners in flood risk management are uncertain on how to take abstract cultural heritage values into account and what the role of cultural heritage can be in increasing flood risk safety (Egberts & Renes, 2020; Fatoric & Biesbroek, 2020). Additionally, it is currently unknown how spatial quality, and cultural heritage as a component of spatial quality, is taken into consideration in the Dutch flood risk management program: the HWBP. This research aims to provide clarity on this issue and assist policy makers to integrate the cultural heritage sector in flood risk management policies and projects, which has not yet been achieved (Fatoric & Egberts, 2020; Mees et al., 2014). So far, this integration has been inconsistent, indicating that new approaches and policies are needed to improve current practices (Egberts & Renes, 2020). Moreover, integration will be necessary to safeguard the cultural heritage benefits for current and future generations (Fatoric & Egberts, 2020).

1.6 Outline of the thesis

This thesis is comprised out of seven chapters. In chapter 1, the study is introduced and the research questions are formulated. Chapter 2 will encompass the theoretical framework wherein key trends in the policy domains of cultural heritage and flood risk management are discussed. This chapter also discusses the policy instruments that are applied to integrate cultural heritage in flood risk management, which will be operationalized in the conceptual framework. Chapter 3 will elaborate on the methodology that is applied to answer the research questions and includes a description of the case studies. Chapter 4 will discuss the results of the first case study, the project Stenendijk. Chapter 5 encompasses a discussion of the results from the second case study, the project Grebbedijk. In chapter 6, the case studies will be compared based on the results that are discussed in the previous chapters. Finally, in chapter 7, the study is concluded as the research questions are answered and recommendations are provided.

Chapter 2 – Theoretical framework

The previous chapter has introduced the governance challenge of integrating cultural heritage in flood risk management. This chapter will first discuss the key trends in flood risk management and cultural heritage policies that provide opportunities to overcome this governance challenge. Second, this chapter will elaborate on what policy instruments are and how they can be conceptualized. Third, the policy instruments that are applied to integrate cultural heritage in flood risk management projects will be discussed. Subsequently, this will enable the creation of a conceptual framework that can be used to compare the case studies of the Stenendijk and Grebbedijk.

2.1 The spatial turn in flood risk management

Flood risk management has witnessed a paradigm shift from flood protection to flood risk management. Early flood policies merely focused on a robust defence through the implementation of dikes and other technical engineering solutions. These are now transformed into flood risk management measures, which involve the need for land. Therefore, increased integration between flood risk management and spatial planning is required to include different land uses in plan-making (Cuminskey et al., 2019). Referred to as the ‘spatial turn’ by Ruiten & Hartmann (2016), the integration of flood risk management and spatial planning is a major development in Dutch water management and involves three characteristics that mark the paradigm shift.

First, the spatial turn entails the creation of additional space for the river to retain water to reduce the risk of floods. The increased retention capacity of rivers provide storage for water during events when water levels are high, due to large flow discharges. Furthermore, these measures have the potential to restore natural paths of the river using existing landscape components to reduce flood risks, which could assist in enhancing spatial qualities. However, these measures require additional space, and their development has an impact on the area surrounding the water system, which has to be taken into account (Ruiten & Hartmann, 2016).

The second characteristic of the spatial turn involves the extended variety of measures that can be used to decrease the risk of floods (Ruiten & Hartmann, 2016). Flood risk management measures do not only focus on the minimization of the probability of a flood, as occurred in the flood protection paradigm wherein technical measures were implemented with strict standards for flood probability. Instead, flood risk is calculated as probability multiplied by the consequences for the flood plain (Nillesen, 2014). This creates opportunities to minimize flood risks using measures, such as adaptation of the built environment which reduces damage during a flood event (Ruiten & Hartmann, 2016).

The third characteristic of the spatial turn involves that flood risk management takes the hinterland into account. This integrative flood risk management therefore involves shared responsibilities between actors. This is in contrast to the flood protection paradigm where the dike posed an institutional barrier which clearly divided responsibilities between actors. Additionally, the integrative approach

demands multi-level collaboration between institutions since up- and downstream developments influence flood risks along the river basin. Furthermore, there is limited room for development along rivers, and the urbanization along rivers is generally high. As such, integrative flood risk management requires collaboration with multiple actors across different policy sectors. Therefore, water management has evolved from a sectoral policy to a multi-faceted policy through the process of horizontal integration (Ruiten & Hartmann, 2016).

The spatial turn in flood risk management has several implications for cultural heritage. First, there can be more conflicts between both domains, as the increased need for space for flood risk management might intersect with spaces of cultural heritage. This may lead to conflicts, as a focus on preservation of cultural heritage may hinder development of flood risk management measures. In addition, the development of the flood risk management measures may negatively affect the cultural heritage values. Second, the focus on the minimization of the impact of floods has led to the adaptation of cultural heritage to increase flood safety. Again, this impact can pose similar conflicts between the interests of both domains. However, it also provides opportunities for cultural heritage to be restored as part of the flood risk management project (Projectbureau Belvedere, 2010). This coincides with a recent trend in cultural heritage policies wherein it is recognized that cultural heritage 'can be preserved or restored through development' of flood risk management measures (Janssen et al., 2017).

2.2 Policy trends in cultural heritage management

Contrary to what many believe to be a stagnant discourse, cultural heritage management approaches continue to change over time, as the meaning of heritage changes over time (Janssen et al., 2017). Focussing on the relation between cultural heritage and spatial planning, Janssen et al. (2017) have identified three approaches in cultural heritage management that are currently applied in Dutch spatial planning practices. These three approaches have developed over time and embody different aims to manage cultural heritage (See figure 1).

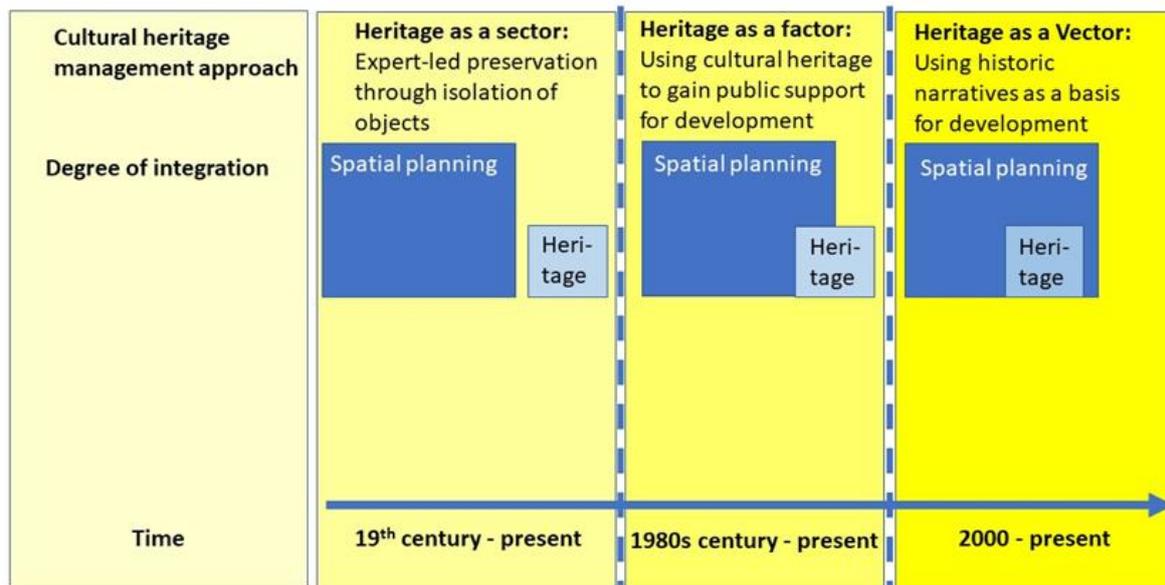


Figure 1: Trends of integration between spatial planning and cultural heritage (Janssen et al., 2017).

First, the traditional perspective on heritage has been constituted by a ‘positivist discourse’ wherein the goal is to isolate heritage objects from society to preserve their values. Referred to as the ‘sector-approach’, it involves the identification and registration of heritage objects, as well as the provision of a legally binding protective status. The latter is often perceived by planners as a barrier for future-oriented developments. Over the last decades, the understanding that cultural heritage is a collection of objects that must be preserved at all costs has changed. Currently, cultural heritage practitioners are recognizing that heritage is a socio-cultural construct, linked to both the present and the past (Egberts & Renes, 2020). This alternative perception of heritage has led to the rise of new discourses and approaches on how to manage cultural heritage. In turn, this has created new possibilities for the integration of cultural heritage in spatial planning (Janssen et al., 2017).

Also known as the ‘factor-approach’, cultural heritage is increasingly perceived as a component of spatial quality. Subsequently, the role of heritage practitioners has changed from mere preservationists to consultants on spatial quality. In practice, this has led to the collaboration between planners and heritage practitioners resulting in a ‘make-over’ of heritage objects. Hereby, planners can use the presence of historical values to gain public support for their plans. The factor-approach can also be applied to preserve cultural heritage values by incorporating the preservation or restoration of cultural heritage in new developments (Janssen et al., 2017).

The third approach concerns the ‘vector-approach’ and entails not only the collaboration between heritage practitioners and planners, as occurs in the ‘factor-approach’, but also involves cooperation with politicians and public stakeholders through participation (Janssen et al., 2017). Within the ‘vector-approach’, cultural

heritage is recognized as a dynamic phenomenon consisting of both tangible heritage, including historic sites and objects as well as intangible heritage comprised of stories and traditions. The latter is applied in the vector approach to add a historical narrative to spatial developments. Thereby, it ‘inspires and guides spatial planning in the broader sense’ (Janssen et al., 2017). This way, the vector approach can enhance spatial quality and support spatial developments by providing a source of knowledge and inspiration (Egberts & Renes, 2020).

Even though the sector-, factor-, and vector-approaches have evolved successively, they are all still applied in practice today. The selection of approaches suitable for a project depends on the context, scale, and issues at hand. This means that there is not one-fits all ‘uniform’ approach for all challenges for cultural heritage. Instead, there is a variety of approaches that involves a configuration of preservation, conservation, and transformation of cultural heritage. The different approaches in cultural heritage management over time show a clear trend in cultural heritage policies, wherein cultural heritage has increasingly been integrated in spatial planning (Janssen et al., 2017).

Coinciding with the spatial turn in flood risk management, this trend also provides opportunities for increased integration between cultural heritage and flood risk management (Ruiten & Hartmann, 2017). However, the traditional sector-approach is still dominant in cultural heritage management. This can lead to tensions between the desire to preserve cultural heritage, and the need to implement flood risk management measures in the face of climate change. For example, a focus on preservation of heritage might decrease alternative options for flood risk management measures (Egberts & Renes, 2020). On the other hand, the application of the factor-, and vector-approaches, is promising for the integration between cultural heritage and flood risk management. Both allow for cultural heritage to be preserved through development. This occurred in the project Overdiepse polder in the Netherlands wherein a vector approach led to a solution that provided inspiration for a flood risk management measure. The project involved active participation with the local citizens which led to the creation of terps. These are mound structures of dirt that are created to build houses on. This measure has been derived from the terps, which are a key component of Dutch water heritage and proved to be a viable solution for the current flood risk management strategy of creating additional space for water (Rădulescu et al., 2020). However, this example is an exception from general practice. It is often difficult to create such integrative solutions as it remains a governance challenge. A main reason for this is that it is unknown how to arrive at these solutions (Fatoric & Seekamp, 2017). Primarily, because integration involves more stakeholders with conflicting interests, leading to increased complexity (Projectbureau Belvedere, 2010). Therefore, it is relevant to focus on the policy instruments that are applied to create solutions that integrate cultural heritage and flood risk management (Mees et al., 2014).

2.3 Policy instruments for integrating cultural heritage and flood risk management

Policy instruments, also known as ‘the tools of government’, form the means to solve societal issues by achieving their related policy goals (Hood & Margetts, 2007; Verweij et al., 2021). As such, policy instruments are part of governance arrangements. This theoretical focus is suitable as design of policy instruments or policy instrument mixes, can enable or constrain integration in planning practice (Stead, 2021). Moreover, selecting certain policy instrument mixes can assist in realizing integrative adaptation plans. As such, this study perceives policy instruments as the means to achieve the integration of cultural heritage in flood risk management projects (Mees et al., 2014).

In academic literature, there are two distinct perspectives on how to analyse policy instruments: the network-based approach and the resource-based approach (Bressers & O’Toole, 1998; Hood, 1983). First, the network-based approach focusses on the role of policy networks in the selection of policy instruments. This line of studies emphasizes the interactions between a government and societal actors in policy instrument selection, by elaborating the characteristics of these actors and instruments (Bressers & O’Toole, 1998). This approach provides a relevant entry point for analysing policy instruments. However, the network-based approach has been criticized for merely focussing on the selection of single policy instruments, while acknowledging the existence of instrument mixes (Howlett & Rayner, 2007). Second, the resource-based approach in policy instrument studies focusses on the governments capacity to affect societal change in terms of the resources that a government has at its disposal. By categorizing policy instruments based on the resources on which they rely it is possible to analyse multiple policy instruments also referred to as a policy instrument mix (Hood & Margetts, 2007).

For this study, a resource-based approach will be taken to explore how policy instruments are applied to integrate cultural heritage in flood risk management projects of the Stenendijk and Grebbedijk. First, preliminary research on the cases has shown that there are multiple policy instruments applied in both projects to achieve this integration. This makes the resource-based approach more suitable for the nature of this study, as the network-based approach is criticized for focussing on single instruments (Howlett & Rayner, 2007). Second, the projects of the Stenendijk and Grebbedijk are both initiated by waterboards, which are the local authorities for water management in the Netherlands. Using the resource-based approach allows for a comparison between the applied policy instrument mixes that are used by these waterboards (Hood & Margetts, 2007). Third, a previous study on the enhancement of spatial quality in the Room for the River programme by Verweij et al. (2021) has taken a resource-based approach. This provides a theoretical background on the instruments that are applied for the integration of cultural heritage in flood risk management projects. Moreover, it means that the results of this study add to the current literature on the enhancement of spatial quality in Dutch flood risk management.

However, there are multiple categorizations or typologies for assessing policy instruments within the studies that apply a resource-based approach (Stead, 2021). One well-established conceptualization of policy instruments is the NATO-Typology by Hood (1983), which provides four categories of policy instruments including nodality, authority, treasure, and organization. This typology is used to simplify the various policy instruments available to policy makers which allows for the comparison and assessment of each policy instrument within a policy arrangement (Howlett & Rayner, 2007). Moreover, the NATO-typology can be applied to analyse policy instruments used throughout all levels of governments. Within this study, a focus will be made on the instruments applied by the waterboards that are responsible for the Stenendijk & Grebbedijk projects. This enables a more detailed analysis of the instruments that are applied in flood risk management rather than contextual instruments that are outside the influence sphere of the waterboards (Woltjer & Al, 2007). The NATO-typology is based on four different kind of resources that a government has at its disposal (Hood, 1983).

First, nodality involves the resource of information, which a government, as central 'node' in society, can gather or exchange to influence societal change. The power of nodality instruments is limited by the 'credibility' of the information, how it is provided by a government and how it is received by societal actors (Hood & Margetts, 2007). Examples of nodality instruments are stakeholder engagement and public participation wherein governments initiate interaction with local stakeholders and citizens through design ateliers and information evenings. In doing so, a government is able to receive and exchange information to gain input and support for flood risk management projects (Edelenbos et al., 2016).

Second, authority resources enable a government to impose societal change through 'legal or official power' commonly imposed through legislation. The power of these instruments is determined by the 'legal standing' on which they are based (Hood & Margetts, 2007). Examples of authority instruments include tender documents which set out specific requirements for contractors in a contractual document which determine the outcome of a project (Verweij, 2021). For the purpose of this research, the definition of authority instruments will be extended to include non-legislative documents as well. Waterboards tend to rely on guiding documents to ensure that spatial quality and cultural heritage are taken into account in decision-making and design processes. Although these documents do not control the outcome of the project through legislative power, they can apply informal pressure to take spatial quality and cultural heritage into account (Nillesen, 2014). This is in line with the way waterboards operate, as they depend on 'mutual consensus' and 'collective decisions' that form the basis for these guiding documents (Woltjer & Al, 2007).

Third, treasure resources are comprised of a stock of money or goods and therefore involves the financial capacity of a government. Used as an instrument, treasure enables the government to exchange money or goods for information or influence actions of societal actors. Logically, treasure instruments are limited to the financial capacity or amount of goods that the government is willing to spend (Hood & Margetts, 2007). Funding and subsidies are examples of treasure instruments that

are provided by a government to, for instance, allow for the restoration of cultural heritage within a flood risk management project (Projectbureau Belvedere, 2010).

Fourth, organization resources consist of the amount of people and their skills, equipment, materials, and buildings that a government has at its disposal. Through the application of these resources, organisational instruments enable a government to directly act, rather than hiring private parties to achieve a specific outcome. This is limited by the government's capacity of resources, such as, the available employees (Hood & Margetts, 2007). To increase a governments capacity to act, waterboards can hire external expertise, such as landscape architect bureaus to work as a temporary part of their organisation (Van den Brink et al., 2019).

Although organisation instruments often involve nodality, authority, and treasure instruments, it is separated as another type of instrument to highlight direct governmental involvement. For this reason, organization can be perceived as an overarching category of instruments within the NATO-typology. Therefore, it is convenient to first shed light on organizational instruments when looking at the role of waterboards in integrating cultural heritage in flood risk management projects (Hood & Margetts, 2007).

2.4 Applied policy instruments for integrating cultural heritage and flood risk management

Based on the NATO-typology, a literature review has been carried out to identify which policy instruments can be applied to integrate spatial quality and cultural heritage values into flood risk management projects in the Netherlands. Several instruments for integrating spatial quality have been identified, using insights from previous research on the Room for the River programme (Verweij et al., 2021; Nillesen, 2014; Klijn et al., 2013). These include landscape architects, tender documents, spatial quality frameworks and spatial quality teams. Additionally, more policy instruments have been identified from literature on the field of flood risk management including (Edelenbos et al., 2016; Thistlethwaite & Henstra, 2017), public participation, stakeholder engagement as well as funding and subsidies. The importance of these instruments is also mentioned in the literature on cultural heritage management (Janssen et al., 2017; Egberts & Renes, 2020; Projectbureau Belvedere, 2010; Stead, 2021). The latter field of research also provided insights on policy instruments that are applied to integrate cultural heritage spatial planning including, spatial quality advisors and cultural heritage policies. The remainder of this chapter will elaborate on the application of these instruments in flood risk management projects.

Organization

The organizational instruments are identified by focussing on the expertise of waterboards to integrate cultural heritage in flood risk management projects. waterboards expand their expertise on cultural heritage by contracting landscape architects that are responsible for the enhancement of spatial quality and, as such,

the management of cultural heritage (Van den Brink et al., 2019). This adds to the expertise of the waterboard for managing cultural heritage, which is provided through the employment of cultural heritage experts or ‘advisors on spatial quality’ (Egberts & Renes, 2020).

Landscape architects

Landscape architects have increasingly been employed to enable the integration of spatial quality in flood risk management projects, and to create co-benefits between various spatial functions (Nillesen, 2014; Van den Brink, 2019). There is limited research on the inclusion of landscape architects in improving integration in flood risk management projects. However, recent research by Van den Brink et al. (2019) provides evidence that the involvement of landscape architects in flood risk management projects can assist in transdisciplinary collaboration across institutional boundaries. Therefore, it becomes evident that landscape architects can act as boundary spanners between flood risk management and spatial planning. They are employed to bridge interests and organizations as well as connect different actors. Landscape architects also provide alternative views on spatial issues through the creation of designs and establish public support and engagement (Van den Brink et al., 2019). In this way, designs produced by landscape architects are applied as input for argumentation for situations wherein interests are conflicted by opening a learning process which changes the perspectives of stakeholders (Heeres et al., 2016). This means that landscape architects are not merely employed to create a product in the form of a specific plan or design for an area (Heeres et al., 2016; Stead, 2021). Instead, employment of landscape architects entails the instigation of a creative process that leads to shared decision-making (Van den Brink et al., 2019; Heeres et al., 2016; Stead, 2016). Such creative processes demand the capacity for open and creative discussion concerning the interrelatedness of land uses, and willingness of actors to collaborate with an open mindset (Heeres et al., 2016). To ensure spatial quality is enhanced, it is stated by both Van den Brink et al. (2019) and Nillesen (2014) that it is vital to include landscape architects at an early stage to enable effective integration spatial quality within flood risk management projects. Furthermore, the duration in which a landscape architect is involved in flood risk management projects plays an important role in securing the interests for spatial quality as landscape architects may be employed to ensure that the enhancement of spatial quality is realized in the implementation phase (Verweij, 2021).

Advisors on spatial quality

To integrate cultural heritage in flood risk management in the Netherlands, waterboards can resort to employ heritage experts. These experts often refer to themselves as ‘advisors on spatial quality.’ Their role is to enhance the quality to flood risk management project by participating in decision-making processes. Furthermore, they can provide stories about the cultural heritage, which can increase the public support for a project by linking water heritage to current developments. A starting point for advisors on spatial quality to influence decision-making processes on the project level is to list the monuments that fall under the responsibility of the

waterboard. Additionally, spatial quality advisors can create cultural heritage policies, which can be applied as authority instruments and provide guidance for integrating cultural heritage (Egberts & Renes, 2020). However, to actually influence the integration cultural heritage on the project level, the advisors on spatial quality should be included at an early stage and throughout the entire project. This is problematic as the involvement of cultural heritage experts is often too late, and they face difficulties in asserting influence in the project. The latter is partly caused by difficulties in formulating cultural heritage values, and making them concrete (Bond et al., 2014). Nevertheless, the advisors on spatial quality could provide an entrance point for the integration of cultural heritage in flood risk management. Similar to the landscape architects, they could also act as boundary spanners. They have knowledge on both sectors and form a link between other governmental agencies that are responsible for preserving cultural heritage (Egberts & Renes, 2020; Van den Brink et al., 2019).

Nodality

Nodality instruments in flood risk management projects are used by waterboards to inventory ambitions and interest of local stakeholders and citizens. Waterboards also provide information to these parties to gain their support for the project (Edelenbos et al., 2016). A widely acknowledged way of creating integrative solutions in flood risk management is a broad stakeholder involvement. Stakeholder involvement concerns the coordination between governmental institutions on different levels of governance and across sectors, non-governmental organizations, and private actors. This allows for the identification of interests involving, cultural heritage and other interests. These interests may vary between areas, meaning that it is vital to actively engage local actors to overcome conflicting interests, preferences and priorities and reach a shared consensus between stakeholders. The governmental body responsible for flood risk management should therefore position itself a central node for information (Rees, 2002). According to Edelenbos et al. (2016), 'participation can enhance both the quality and democratic legitimacy of policy processes and decisions.' Herein, a distinction can be made between stakeholder engagement and public participation. Additionally, spatial quality teams act as nodality instruments to promote and secure the interests for spatial quality, and thus, cultural heritage (Klijn et al., 2013).

Stakeholder engagement

Stakeholder engagement concerns the process in which individuals, groups or organizations that can influence, or are affected by, the decision-making process (Edelenbos et al., 2016). Stakeholder engagement is a nodality tool, as it involves the responsible governmental body to provide information. This is done in the form of arguments and plans to convince other stakeholders and affect the implementation of a project. Stakeholder engagement can be beneficial for the creation of integrative solutions in multiple ways. First, stakeholder engagement is part of the factor-, and vector-approach in cultural heritage management, wherein heritage experts from various governmental agencies are involved to provide knowledge for plan-making. The focus of heritage experts in this approach is not on the value assessment, but on

providing support for the enhancement of spatial quality. Herein, the attractiveness of the area is often considered to be a more important aspect than the authenticity of the heritage object (Janssen et al., 2017). Second, stakeholder engagement allows for the opportunity to solve cross-sectoral issues, reducing costs and producing opportunities to create additional values for an area of development. Within this creation of additional values, cultural heritage can act as a bridge between flood risk management goals and the desire to enhance spatial quality. Namely, cultural heritage can form a basis on which stakeholders can find common ground. This creates support for decision-making and steers actors in the same direction, expediting the decision-making process. Third, stakeholder engagement enables actors to experience cultural heritage values by themselves, creating an increased understanding on why cultural heritage is relevant to take into account and how cultural heritage may be integrated in new developments (Projectbureau belvedere, 2010).

Public participation

Public participation involves the process in which individuals or groups, such as local communities, are contacted to by the responsible governmental body to provide and receive information that is relevant to the decision-making process (Edelenbos et al., 2016). Thereby, the public participation process is controlled by the governmental body that initiates the process. The government can restrict the involvement of the public through the application of methods, definition of scope and timing, and the setting of rules for the process. Depending on these factors, public participation may lead to increased public support for decisions, improved decision-making by applying local knowledge gained from the public and an increase of trust from the public (Edelenbos et al., 2016). Furthermore, public participation can assist to inventory information that is relevant for the creation of additional values for flood risk management projects. This can include historical information and opinions of local residents. For example, resident may give insight in the importance of certain values given to the cultural heritage. This information might also benefit flood risk management measures, as knowledge derived from cultural heritage can be applied to solve current issues in for flood risk management today. Additionally, public participation can increase flood risk awareness. (Project bureau belvedere, 2010).

Public participation is a central component of the vector approach in cultural heritage management. Within this approach, the public is actively engaged to add a narrative to the development. They may provide intangible heritage in the form of stories and traditions (Janssen et al., 2017). However, in practice there is often a focus on heritage objects rather than the intangible heritage components such as the narrative and cultural identity (Bond et al., 2004). The application of the vector approach has an additional benefit. It may provide an increase in public support for the enhancement of cultural heritage by stimulating discussions between stakeholders and local citizens (Janssen et al., 2017).

Spatial quality teams

Spatial quality teams are increasingly involved to secure the interests for spatial quality in Dutch flood risk management projects (Van den Brink, 2019). They consist of independent members with an interdisciplinary background. They provide project teams with asked and unasked advice on how to integrate spatial quality in flood risk management projects in two ways. First, the spatial quality teams visit the project area, together with the project teams, to start an open dialogue and present ideas on how to secure the interests for spatial quality in the projects design. Second, the spatial quality teams make an assessment of the designs before the implementation of the plans. They then provide constructive feedback on how the enhancement of spatial quality could be improved upon. The latter drives the project teams to increase their performance towards the integration of spatial quality within the projects. However, apart from their controlling role, the spatial quality teams are primarily applied in flood risk management projects to share knowledge with the project teams. In projects of the 'Room for the River programme', they often advised the project team to a broader scope for the project take into account, by including ambitions of local stakeholders. Furthermore, it was advised that waterboards should employ landscape architects to secure the interests for spatial quality in the design process. The commissioning of a spatial quality teams can therefore assist in integration cultural heritage at early stages of flood risk management projects (Klijn et al., 2013).

Authority

Authority instruments are applied by waterboards to secure the interests for cultural heritage in flood risk management projects. These instruments include tender documents, which are legislative contracts in which the requirements for spatial quality and cultural heritage are set out (Verweij et al., 2021). Additionally, waterboards create non-legislative documents, including spatial quality frameworks and cultural heritage policy documents, which set out the ambitions for cultural heritage (Nillesen, 2014; Egberts & Renes, 2020).

Tender documents

How cultural heritage is incorporated in flood risk management plans depends on the requirements made by the government for cultural heritage development as part of spatial quality (Janssen et al., 2017). When private contractors are involved in a flood risk management project, these requirements can be listed in a tender document. This authority instrument can thus include demands set out by the government, for the procurement of a private contractor. The extent to which these requirements have been described in the tender contract determines the outcome of the project concerning the enhancement of spatial quality. Requirements can be general, whereby a certain flexibility is given to the private contractor in how to incorporate spatial quality. On the one hand, this flexibility enables private contractors to use their knowledge and expertise in creating integrative solutions. On the other hand, the contractor might use the provided flexibility to only achieve a limited enhancement of spatial quality whilst still fulfilling the requirements set out in the

contract. To overcome this issue, ‘transparent and interactive dialogue’ between the government and private contractors is needed (Verweij et al., 2021). This is relevant in the orientation phase, prior to the awarding of the contract, as it can assist in managing expectations. Additionally, this dialogue is relevant throughout the project as it helps to create a solution with the best possible value, and establishes a sense of trust between stakeholders (Busscher et al., 2017). When spatial quality requirements are made before involvement of a private contractor, more specific requirements can be set out in the tender document. Specific requirements limit the role of the private contractor in the creating enhancement of spatial quality as they involve explicit demands for projects design (Verweij et al., 2020). Although the projects design does not profit from knowledge and expertise of private contractors, spatial quality can still be achieved. However, the importance of enhancement of spatial quality and the ability to find innovative ways to accomplish spatial quality are reduced (Busscher et al., 2017).

Spatial quality frameworks

As an organizational policy instrument, landscape architects can be employed to create frameworks for spatial development, which can be applied as an authority instrument. An example of a framework for spatial development created by landscape architects is the spatial quality assessment framework (Ruimtelijke kwaliteits toets). This framework was applied in Room for the River project to assess the impact of projects on spatial quality in the local area of operation. Within this framework, the impact on spatial quality could either be neutral, negative, or positive. The latter would highlight possibilities for the enhancement of spatial quality. Furthermore, the framework also allowed to assess the impact on cultural heritage or historical characteristics of an area that, in turn, would influence the spatial quality. The creation of frameworks by landscape architects can therefore assist flood risk management practitioners in decision-making processes by identifying the ambitions, interests and values that have to be considered (Nillesen, 2014). Furthermore, it can assist in the assessment of the project in later stages of the project (Nillesen, 2014; Verweij, 2021).

Cultural heritage policies

Internal policy documents of the waterboards are often created by heritage experts or advisors on spatial quality to influence decision-making and design processes. Within these documents, the goals for cultural heritage management can be described to guide and stimulate the integration of cultural heritage in flood risk management projects. The latter is achieved by emphasizing the benefits of integration to the flood risk management practitioners. For example, the internal heritage policy can advise to further involve the public and underline cultural heritage to gain public support for the project (Egberts & Renes, 2020). As for design processes, internal heritage policy can also provide guidance on how to integrate cultural heritage in flood risk management measures. Cultural heritage objects increasingly face the need to be transformed or adapted in the face of climate change. This can raise conflicts between the need to preserve cultural heritage and necessity to provide flood risk safety. Having an internal cultural heritage policy in place can assist in mitigating these

conflicts, by providing guiding principles for the adaptation of cultural heritage objects, benefitting both sectors (Fatoric & Egberts, 2020).

Treasure

Treasure instruments that are applied by waterboards to obtain the financial means to create integrative solutions include funding and subsidies. Funding is gained for a specific project and is often procured through collaboration with other stakeholders that are willing to co-finance the project. Similarly, waterboards can apply for subsidies from other governmental agencies that support the integration of cultural heritage (Projectbureau Belvedere, 2010).

Funding & subsidies

The allocation of additional funds for integrating cultural heritage in flood risk management projects requires treasure instruments. In flood risk management, costs can be divided between different sectoral organizations. Costs for flood safety are often the responsibility of the flood risk management agencies. Costs for the creation of additional values, including enhancement of cultural heritage, must be accounted for by other governmental agencies (Thistlethwaite & Henstra, 2017). Therefore, it is relevant to set up shared funding schemes to implement integrative solutions through co-financing. This is also in the best interest of flood risk management practitioners as it may reduce costs for their organization by sharing expenses (Metz & Glaus, 2019). Additionally, governmental agencies may also allocate subsidies to flood risk management projects which provide an incentive to the waterboards to improve spatial quality and preserve cultural heritage. To apply for these subsidies, the ambitions of the flood risk management projects have to match certain requirements and ambitions for cultural heritage management that are set out by these agencies (Projectbureau Belvedere, 2010).

The conceptual framework

The policy instruments described throughout this chapter, have been identified as the means that can be applied in flood risk management projects to integrate cultural heritage. These instruments are included in the conceptual framework, following the NATO-typology (See table 1). This conceptual framework will be used to compare the instruments mixes that are applied in the case studies of the Stenendijk and Grebbedijk.

<p>Organization <i>instruments allow a government to act directly by applying its own resources to influence societal change.</i></p>	<p>Nodality <i>instruments allow a government to act, as a central node in society, by gathering or exchanging information to influence societal change.</i></p>	<p>Authority <i>instruments enable a government to impose societal change through legal or non-official power.</i></p>	<p>Treasure <i>instruments enable a government to exchange money or goods to influence societal change.</i></p>
<ul style="list-style-type: none"> • Landscape architects Can act as boundary spanners by initiating integrative and creative design processes that can lead to shared-decision-making (Van den Brink et al., 2019; Heeres et al., 2016). • Cultural heritage advisors Can act as boundary spanners by providing advice on spatial quality and assisting in gaining public support by linking cultural heritage to current developments (Van den Brink et al., 2019; Egberts & Renes, 2020). 	<ul style="list-style-type: none"> • Stakeholder engagement Assists in solving cross sectoral issues by bridging conflicts to create additional value through, for instance, design ateliers (Projectbureau Belvedere, 2010). • Public participation Assists in gathering historic information and stories that can form a narrative for development, and in turn, increase public support through, for instance, information evenings, one-to-one conversations & focus groups (Projectbureau Belvedere, 2010; Edelenbos et al., 2016). • Spatial quality teams Secure the interests for spatial quality through the assessment of plans and advising project teams (Klijn et al., 2013). 	<ul style="list-style-type: none"> • Cultural heritage policy documents Stimulate integration of cultural heritage in flood risk management projects by setting ambitions and providing guidance (Egberts & Renes, 2020). • Spatial quality frameworks Illustrate possibilities for the enhancement of spatial quality and provides an assessment on the impact of a project on spatial quality (Nillesen, 2014). • Tender documents Set requirements for spatial quality which assists in managing expectations and secure the interests for spatial quality during planning and implementation (Busscher et al., 2017; Verweij et al., 2020). 	<ul style="list-style-type: none"> • Co-financing Allow a government to utilize the capacity of the market to improve performance of a contractor which can benefit the enhancement of spatial quality (Verweij et al., 2021). • Subsidies Can provide an incentive for flood risk management organizations to enhance spatial quality and preserve cultural heritage (Projectbureau Belvedere, 2010).

Table 1: The conceptual framework.

The remainder of this thesis will elaborate on the policy instruments that are applied to integrate cultural heritage in the flood risk management projects of the Stenendijk and Grebbedijk. First, a description of the methodology of this study will be provided. Second, the results for each of the case studies will be discussed separately, to see how integration between cultural heritage and flood risk management are achieved in practice. Third, the case studies will be compared to draw conclusions, and provide the lessons that are learned, from the case studies.

Chapter 3 – Methodology

This chapter will elaborate on the methodology that has been adopted to study the cases of the Stenendijk and Grebbedijk. First, the research strategy will be described. Second, it will be explained how the case studies have been selected and a description of each case will be provided. Subsequently, the research methods, data collection process and data analysis processes will be outlined. Finally, the limitations and ethics surrounding the adopted research methods will be discussed.

3.1 Research strategy

The primary research strategy for this study concerns a multiple-case study design wherein a small number of cases are selected. This small N-method allows for an intensive research design, which assists in creating an in-depth understanding of the cases (Yin, 2003). Focussing on multiple case studies allows for comparison between the cases by exploring similarities and differences (Rice, 2010). The use of local case studies will help understand how various stakeholders involved in the governance of flood risk management will value processes differently. Additionally, it can help to explore how integration between cultural heritage and flood risk management is achieved in different governance systems and multiple social and geographical contexts (Fatoric & Egberts, 2020). Furthermore, the use of multiple case studies in different geographical and institutional contexts enables the triangulation of the collected data. This will reinforce the validity and create a broader understanding of the results (Rice, 2010).

3.2 Case study selection

The case selection is based on knowledge acquired through web research and the aim of this research. For the selection of the cases, both a degree of homogeneity as well as variation is applied following deliberate choices for the design of this study (Yin, 2009). Following the aim of this study, homogeneity throughout the cases is maintained. The selected cases concern dike reinforcement projects of the HWBP that required management of cultural heritage objects. These cases have been selected because they have been promoted by the waterboards as examples of good practice. This has been confirmed by the cultural heritage & spatial quality policy advisor of the waterboard DOD in a discussion that has been held prior to the semi-structured interviews. By maintaining homogeneity between the cases, contextual factors concerning the presence of cultural heritage objects can be neglected. As such, a focus can be maintained on the policy instruments that waterboards have applied for the integration of cultural heritage. Variation between the case studies has been created by selecting cases that have a different approach towards adaptation and preservation. It may be that this affects the selection of policy instruments for each case. Additionally, the cases are located in different geographical areas throughout the Netherlands, meaning that different governmental institutions and stakeholders were involved. This will allow for the comparison between the different policy

instruments that are applied in the cases. Furthermore, it enables triangulation of the collected data and allows for generalizations to be made (Yin, 2009).

The units of analysis are two dike reinforcement projects, involved in the flood risk management of the ‘Hoogwaterbeschermingsprogramma’ (HWBP) in the Netherlands. These projects include the Stenendijk in Hasselt and the Grebbedijk between Wageningen and Rhenen (See fig. 2). More specifically, the unit of analyses, or the case, is determined by defining spatial boundary, theoretical scope, and timeframe (Yin,2003). First, First, the spatial boundary is confined to the borders of each projects area, the individual heritage objects, and to the historic landscape influenced by the projects. Second, the theoretical scope of this research concerns a focus on policy instruments that are applied by the waterboards. Finally, the timeframe wherein this research has been conducted is 06-2021 until 08-2022. Within this period, the empirical data collection of this research, consisting of the semi-structured interviews and the policy document analysis, has been performed between 09-2021 and 04-2022.

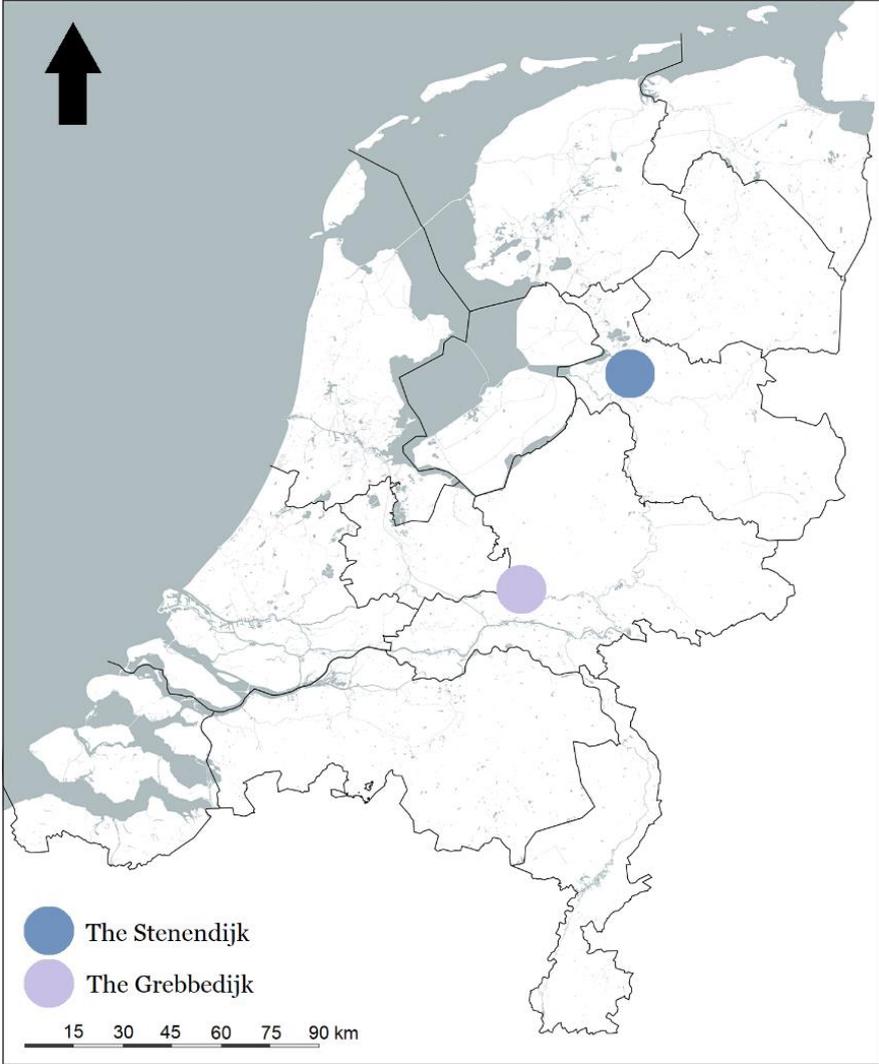


Figure 2: The locations of the Stenendijk and Grebbedijk in the Netherlands

3.3 Description of the case studies

Case study: Stenendijk – Hasselt

The project ‘Stenendijk’ which was initiated by the waterboard Drents Overijsselse Delta. This project involves the reinforcement of a dike (1284 meters) that protects the village of Hasselt in the province of Overijssel from potential flooding of the river ‘het Zwarte water’. The Stenendijk is the only dike in the Netherlands that has a stone wall incorporated in its design. Therefore, the stone wall, which originates from the 16th century, has gained a monumental status. This entails that the cultural heritage values have to be taken into account in the design of the project, whilst the risk of flooding has to be decreased. To secure the interests for spatial quality and cultural heritage, the waterboard has employed landscape architects from the consultancy bureau ‘Witteveen en Bos’. Additionally, other regional stakeholders have been involved to provide additional expertise for managing the cultural heritage object. These stakeholders include the province of Overijssel, the municipality of Zwartewaterland and Cultural heritage agency (RCE) (*Rijksdienst voor cultureel erfgoed*). The project has been initiated in 2019 and is currently being implemented. It is expected that the project is completed in 2023 (Witteveen en Bos, 2019).

Case study: Hoornwerk – Grebbedijk

The project the Grebbedijk is a dike reinforcement project that also involves a wider development of the surrounding area. This is a larger project, so a focus will be made on the reinforcement of the ‘Hoornwerk’. This is a fortification that dates back to 1785. This national monument will be restored as part of the dike reinforcement project that was initiated by the waterboard Valei & Veluwe in 2017. Within the project Grebbedijk, a dike section of 5.5 kilometers will be reinforced. The Hoornwerk is part of this section, and its heightening and restoration has been described as ‘Building with culture’. The Hoornwerk is situated along the river Nederrijn between the towns of Wageningen and Rhenen, located in the provinces of Gelderland and Utrecht. It is a unique fortification structure that formed a key component of the wider Grebbelinie. Apart from this cultural heritage, a natura-2000 area is located in the project area. As a result of these two factors, various stakeholders are involved in the project including the provinces Gelderland and Utrecht, municipalities of Rhenen and Wageningen, Rijkswaterstaat, Utrechts landschap and Staatsbosbeheer. To ensure that the spatial qualities of the area are taken into account, the waterboard has employed multiple landscape architects including FLUX landscape architects and the landscape architect bureau Feddes-Olthof. Currently, the project is undergoing a planning phase wherein plans are finalized. Next, these plans will be implemented in 2025, and the waterboard aims to complete the project in 2027 (Grebbedijk, 2021).

3.4 Research methods

For this research, a qualitative multiple-method approach has been taken in the form of policy document analysis and semi-structured interviews. Derived from Owen (2014), this approach is applied for policy research, as the main sources for information in this field concern documents and people. First, the documents analysis can provide contextual information. Conducting a policy document analysis can assist in creating interview questions. The policy documents also provide a frame of reference, against which the results from interviews can be clarified or challenged. The document analysis can help to create an understanding of the phenomena that are researched. Additionally, it can assist in validating the data collected from the semi-structured interviews. However, additional policy documents can also be included after the interviews, as interviewees may provide new leads or relevant documents (Owen, 2014). Second, the semi-structured interviews provide case specific information concerning complex relations within the governance network. Furthermore, the semi-structured interviews can help to explain how and why processes take place, as well as how they relate to their context (Kothari, 2004). In this sense, semi-structured interviews can add nuance that cannot be derived from policy documents (Owen, 2014; Longhurst, 2010). Heterogeneity between the interviewees, including stakeholders with different backgrounds provides a more accurate description of each case. Furthermore, the inclusion of multiple perspectives enables the validation of the answers given by participants through triangulation within the collected data of each case which minimizes bias compared to single sampling (Rice, 2010).

3.5 Data collection process

3.5.1 Organization of the empirical research

Given the multiple-methods approach for empirical research concerning policy document analysis and semi-structured interviews, multiple sources for information have been used. First, secondary data was collected in the form of national and local policy documents concerning the HWBP, through web research. Other documents have been provided by interviewees after the semi-structured interviews were conducted. Second, the primary data is collected by holding multiple semi-structured interviews with decision-makers, experts and practitioners of cultural heritage management and flood risk management involved in both case studies (Longhurst, 2010). Interviewees have been identified using web research, informative tours of the HWBP and via semi-structured interviews. The latter involved the concept of snowballing, wherein the interviewee shares contact details of new potential interviewees (Longhurst, 2010).

3.5.2 Collection of secondary data

Secondary data in the form of policy documents have been found by searching on the websites of the waterboards of each project and by receiving documents from interviewees. The selection of policy documents that have been analyzed are depicted below in table 2.

Title	Document type	Author	Date of publication
Ruimtelijk kwaliteitskader Stenendijk	Guiding policy document	Witteveen en Bos	2019
Notitie kansrijke alternatieven Stenendijk Hasselt	Intermediate plans	Waterboard DOD	2019
Beleid waterschapserfgoed en ruimtelijke kwaliteit	Internal heritage policy	Waterboard DOD	2019
Ruimtelijk kwaliteitskader Grebbedijk	Guiding document	FLUX Landscape architects	2020
Nota voorkeursalternatief gebiedsontwikkeling Grebbedijk	Intermediate plans	Waterboard V & V	2020
Water gerelateerde cultuurhistorische elementen bij Waterschap Valleien Veluwe	Internal heritage policy	Waterboard V & V	2018

Table 2: List of policy documents used for the policy document analysis

3.5.3 Collection of primary data

To improve organization of the data collection, the semi-structured interviews have been held using an interview guide (See appendix I). This includes main questions and follow-up questions, concerning topics derived from academic literature review, the policy document analysis. The semi-structured interviews have been held through various video call programs, as preferred by interviewees. The primary data has been collected by recording the interviews using a smartphone. Overviews of the semi-structured interviews for each of the cases have been provided in the tables 3 and 4.

Interviewee code	Official function	Organization	Date
CA1	Cultural heritage & spatial quality policy advisor	Waterboard DOD	06-12-21
PM1	Project manager	Waterboard DOD	16-11-21
SM1	Stakeholder manager	Waterboard DOD	07-12-21
LA1a	Landscape architect	Witteveen & Bos	18-03-22
LA1b	Landscape architect	Witteveen & Bos -	18-03-22

Table 3: List of interviewees for the project Stenendijk

Interviewee code	Official function	Organization	Date
PM2	Project manager	Waterboard V & V	17-11-21
SM2	Stakeholder manager	Waterboard V & V	29-11-21
CA2	Cultural heritage policy advisor	Waterboard V & V	25-11-21
LD2	Landscape designer	FLUX Landscape architects	01-12-21
LA2	Landscape architect	Feddes-Olthof	29-04-22

Table 4: List of interviewees for the project Grebbedijk

3.6 Data analysis

The data from the interviews was transcribed manually by the researcher and was coded together with the policy documents. Coding is the process of connecting a word or short sentence to a citation which describes the essence of this citation. The aim of coding is to prepare and organize the collected data for the data analysis through which a researcher can interpret the results. Coding will enhance the understanding of the data by providing insights and creating themes, showing reoccurring patterns (Owen, 2014). Generally, two types of codes can be distinguished. First, deductive codes are categories of topics that have been identified prior to the interview. These are based on theoretical concepts found in academic literature. Second, inductive codes involve topics that have been brought up by interviewees during the interview but were not considered prior to the interview (Hennink et al., 2011). For this study, deductive codes have been created based on the theoretical concepts and

operationalizations made in chapter 2. Examples of deductive codes include public participation and spatial quality framework. Apart from these deductive codes, inductive codes will be added based on topics of interest that were found during interviews, such as, project planning. To provide transparency on the usage of codes in this study, a codebook has been included in appendix III. The software, Atlas.ti, will be used for coding.

3.7 Limitations and ethics

Several limitations can be found when focussing on the research methods applied in this study. First, the use of document analysis entails several limitations for the validity of the data, which must be considered. Policy documents are sometimes written to assist the author in reaching a certain goal, rather than portraying a testimony of truth. This can, for instance, be used to advertise achievements of flood risk management practitioners, whilst concealing difficulties and failures during a project (Owen, 2014). This limitation was mitigated by validating the data from the policy document analysis during the semi-structured interviews. Second, the answers given by the interviewees during the semi-structured interviews can be unintentionally influenced by the interviewer through, for instance, the phrasing of questions. This limitation was mitigated by asking follow-up questions during the interview. Additionally, the citations used in the results of this study have been sent back to the interviewees to verify whether they still agreed with the statements after the interview. This also ensures reliability of the results, as interviewees might have had uncertainties about the answers given during the interview.

As for the ethical considerations, multiple aspects of conducting interviews have been taken into account. First, it is mentioned by the interviewer that participation in this research is voluntarily, and that the interviewee can stop the interview at any time and without explanation. Second, to ensure the integrity of the data is not compromised, the recordings of the interview have been stored on an external drive that was only accessible to the researcher. These considerations have been communicated to the interviewees prior to the interview as per the form of consent, included in appendix II. Additionally, the goal and context of this study have been made clear to the interviewees. Finally, the privacy of interviewees is secured by anonymizing their identity. This is achieved by referring to interviewees using their job title and organization.

Chapter 4 - Case study: the project Stenendijk

This chapter will elaborate on the case study of the Stenendijk. First, the project is introduced by describing the cultural heritage component of the project and the context of the project. Second, the planning of the project will be outlined together with the stakeholders that are involved. Finally, the policy instrument mix that applied to integrate cultural heritage in the project will be discussed by focussing on the individual instruments following the NATO-typology.

4.1 Introducing the project Stenendijk

The only stone wall dike in the Netherlands

The project Stenendijk which is initiated by the waterboard Drents Overijsselse Delta and part of the HWBP. This project involves the reinforcement of a dike (1284 meters) that protects the village of Hasselt in the province of Overijssel from potential flooding of the river 'het Zwarte water' (See fig. 3). Although the dike is still providing safety to the hinterland for now, the dike is vulnerable for expected flood scenarios in the future and therefore it scores below the current water safety standards. The dike originates from the 16th century and is the only dike left in the Netherlands that has a stone wall incorporated in its design. Within the stone wall, different sections can be distinguished by different kind of bricks that have been put in throughout several dike reinforcements over the last centuries. Originally, the dike was reinforced by different owners as each of the sections of the wall used to belong to different owners who shared responsibility for upholding the flood barrier. Due to these unique features, the Stenendijk has been recognized as a national monument (Witteveen en Bos, 2019).



Figure 3: The stenendijk in Hasselt (Witteveen en Bos, 2019).

Restoring the Stenendijk

Apart from flood risk management and cultural heritage policy objectives there are also other interests involved in the project. The municipality of Zwartewaterland, in which the project area is situated, has requested to deliver the project more quickly than usual so the dike reinforcement can be combined with maintenance of the road on top of the dike (Witteveen & Bos, 2019). Additionally, there are also nature values that must be considered as the dike is located alongside a Nature-2000 area

(Witteveen en Bos, 2019). Given the need for dike reinforcement, preservation of cultural values and additionally the objectives for infrastructure and nature, an integrated flood risk management approach is required. Hence, the aim of the project is threefold; to increase safety up to the current standard, to come up with a tailor-made solution that fits in the local context and to create additional value to society (Witteveen & Bos, 2019). Following the orientating research and decision-making process, it was decided that the proposed solution would be the placement of a sheet pile of steel that will be placed inside the dike (See fig. 4). Through this solution, water safety is ensured because this steel barrier will reduce the risk of flooding even if the ground around it is washed away. Placing a sheet pile also mitigates the issue of calculating the flood risk for each brick section and the relation between each section which, according to the landscape architect, “was deemed impossible to calculate”. Furthermore, this solution allows for the preservation of the historic wall which will also be renovated as part of the project (PM1).

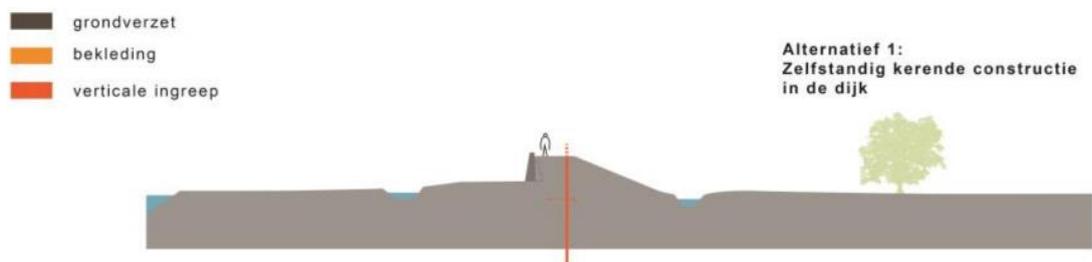


Figure 4: The chosen alternative for the Stenendijk (Witteveen en Bos, 2019).

The chosen solution was the first out of five alternative solutions wherein three alternatives had multiple designs (See fig. 5). The second alternative involved the creation of a new dike that was to be placed either in front or behind the old dike (2A/B). Third, the old dike could have been reinforced by placing additional ground on the inland side of the dike. Fourth, the dike was to be reinforced by placing a concrete barrier behind the wall or improve the outer fabric (4A/B). Fifth, the dike could have been reinforced by creating a new ground body adjacent to the wall (5A/B).

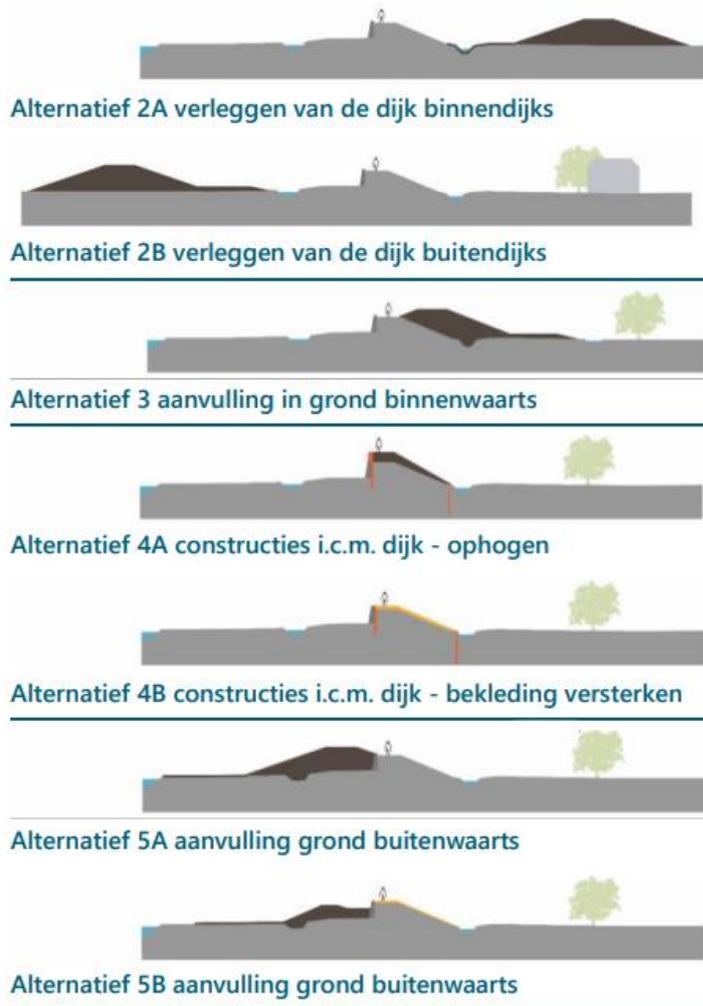


Figure 5: The proposed alternatives (Witteveen en Bos, 2019).

The decision to realize the first alternative was made early on in the orientation phase because of multiple reasons. First, the alternatives that involved heightening the dike were not preferable as the residents of the houses adjacent to the dike would lose their view. Second, it was not possible to heighten the dike on either side of the road because this would pose a safety risk for the cyclists that could not divert from the road in case of an accident. Third, the alternatives wherein a ground body would be placed adjacent to the wall would have a negative impact on the experiential value of the monument since it would not be visible anymore. The chosen alternative, however, mitigated all issues set out above. Heightening the dike will not be necessary as the sheet pile takes over the function of the ground body entirely. Furthermore, the sheet pile is to be placed inside the dike which means the traffic situation will not be altered and the experiential value of the wall will remain unchanged. However, this does not mean there are no consequences for the spatial quality of the historic wall at all (PM1).

Cultural heritage as a component of spatial quality

The spatial quality of the Stenendijk have been described in the spatial quality framework by the Vitruvian triad consisting of utility value, experiential value, and future value (Witteveen en Bos, 2019a). The utility value of the stone wall has been dictated by its function as a flood barrier since it was erected. However, after the realisation of the project this will not be the case any longer as the sheet pile will replace this function entirely (CH1, LA1a). According to the project manager,

“This solution avoids a conflict between flood risk management and cultural heritage management because the decoupling of the monument from the flood risk safety issue means they can be approached as two different features.”

However, the stakeholder manager explained that,

“The removal of the function of the wall as a flood barrier hurts, or is supposed to hurt, since the utility value will not be preserved. At the same time, the stone wall does still retain the ground that is part of the dike. In this sense, the stone wall still upholds some of its functioning for flood safety, but the solution did not come without its costs.”

The loss of the utility value of the stone wall is a negative impact on cultural heritage as all values are ideally preserved. However, according to the landscape architect (LA1a),

“It is impossible to calculate how the stone wall could function as a flood barrier as you have to calculate it for each section of the wall and how they relate to each other. (...) building flood resilience was not possible as the wall was not, and could not become, a functioning part of the barrier. (...) Therefore, it has been decided to preserve the utility value in another way and focus on the preservation of the experiential value.”

The experiential value has been preserved by putting the solution within the soil as mentioned previously. This way, the stone wall will remain visible and its key features, the different sections of bricks, will be preserved as much as possible during the restoration. As the utility value of the dike was secured by the sheet pile, it was possible to focus on the preservation experiential value of the stone wall. According to the landscape architect (LA1b), the key features of the stone wall are “that it is so visible, so dominant in the village, that it is recognizable for the village, that it is unique for the Netherlands and its rarity is its intrinsic value”. The heritage advisor added to this argument by explaining that

“The characteristic brick sections symbolise cooperation for the creation of flood safety. This has to do with the fact that the previous landowners who built the dike were responsible for the maintenance of their dike section. This is a fantastic message for now and the future, as this collaboration is climate resilience. It is all about the story and its power.”

The consequences for the future value of the Stenendijk can be disputed. On the one hand, the flood risk safety will be enhanced after the realization of the project. As for

the stone wall specifically, the sheet pile? is positioned behind the stone wall? leaving the wall unprotected against future floodings. According to the cultural heritage advisor,

“Ensuring water safety for the hinterland is the key assignment for this project. (...) At the same time, it is important to preserve the stone wall, but it can be that the wall is damaged during a flood.”

This shows that the resilience of cultural heritage is not directly taken into account as part of the solution. However, it is important to question whether the stone wall can be resilient in the first place (LA1a). According to the landscape architect (LA1a),

“The wall is not and will not become climate resilient because it is impossible to calculate how the wall could form a water barrier to begin with. This makes it impossible to preserve or enhance the future value unless the wall will be replaced. (...) I think that many cultural heritage objects are not preserved for merely their future value.”

In a different light, the waterboard still has a duty of care which entails that the stone wall has to be maintained and that new brick layers will be added in the future (CA1). According to the stakeholder manager,

“The possible adding of new bricks after prospective floods can also be viewed as a characteristic of the stone wall since the different time layers, which are apparent in the different sections, show the history of the waterboard”.

This shows that heritage is preserved in a more dynamic way, whereby the future value of the stenendijk is that it can change over time. To conclude, these different perspectives on the preservation of the values that form the spatial quality for the Stenendijk underlines that spatial quality is highly subjective (LA1a, CA1). According to the landscape architect LA1b, “it is impossible to preserve all facets of cultural heritage”. To find out which values are relevant to preserve, it is important to inventory the values that are inherent to the monument and make an assessment of which values can be preserved in the first place. According to the landscape architect (LA1a),

“This underlines the importance of the experiential value research and creating a spatial quality framework as they provide an insight on which values are important for the Stenendijk.”

This already shows that these two policy instruments are applied to integrate and translate cultural heritage values as part of spatial quality. The exact functioning an application of these instruments will be discussed in the remainder of this chapter.

Planning of the process

The project Stenendijk is divided into three phases, namely the orientation-, planning- and realisation phase. Initiated in 2019, the project has moved from the orientation phase, in which the preferred alternative was chosen, to the planning phase that involved improving the design of the preferred alternative. Currently, the realization of the project has started with the aim to finalize the project in 2023 (Witteveen & Bos, 2019). Throughout the project, the waterboard has applied a variety of policy instruments for the integration of cultural heritage (See fig. 6).

To ensure that the project fits in the local context and that current values will be maintained, a spatial quality framework (*ruimtelijk kwaliteitskader*) was created by landscape architects of Witteveen & Bos that were contracted during the orientation phase. This framework includes an analysis of the historic qualities and values surrounding the Stenendijk and provides design principles for taking these qualities into account during the project. The basis of the framework is formed around the internal heritage policy of the waterboard that is created by the cultural heritage advisor. To ensure that the spatial quality framework fits the heritage ambitions of the waterboard, a cultural heritage advisor of the waterboard DOD advised the landscape architects in creating the framework. Another important instrument that was applied to create the spatial quality framework is the experiential value research (*Belevingswaarde onderzoek*) which involved the creation of a survey that was filled in by local residents (Witteveen & Bos, 2019).

Apart from this method to include local citizens in the project, the waterboard initiated its own public participation process. This process involved several participation methods including information evenings with interested citizens and one-to-one conversations with affected residents of the houses adjacent to the dike. Additionally, the waterboard led the stakeholder engagement process in order to identify additional ambitions from other governmental agencies. This process involved consultation sessions with the province of Overijssel, the municipality of Zwartewaterland and the Cultural heritage agency (RCE) (*Rijksdienst voor cultureel erfgoed*).

To add additional expertise for integrating spatial quality, a spatial quality team was involved in the orientation phase. This team, consisting of experts from the province of Overijssel, the RCE, and the municipality Zwartewaterland, advised on how spatial quality and cultural heritage could be taken into account by the waterboard and the landscape architects (PM1). At last, with a collaborative alliance of the engineering companies Ploegam, Dura Vermeer and Gebroeders De Koning have been contracted for the creation of a definitive projectplan and the implementation of the project. The policy instruments mentioned above, and the funding of the project, will now be discussed according to the NATO typology.

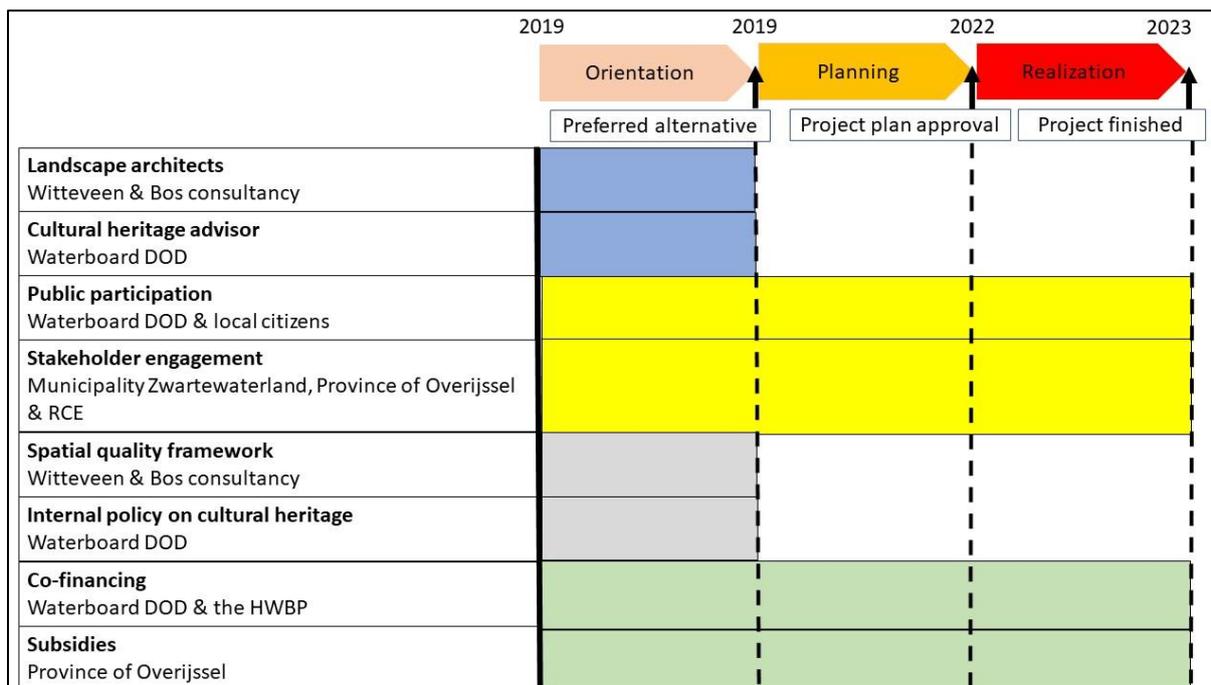


Figure 6: The application of policy instruments during the project Stenendijk

4.2 Applied policy instruments in the project Stenendijk

Organization

Landscape architects

Landscape architects from the consultancy bureau Witteveen en Bos have been assigned to the project at the start of the orientation phase. The landscape architects had a dual task: to create the spatial quality framework and to provide feedback on the different alternative solutions during decision-making process towards the preferred alternative (LA1a, LA1b). Additionally, the landscape architects initiated the experiential value research that served as input for the spatial quality framework. According to the landscape architect (LA1b), “this has been explicitly put forward during the tendering process for the landscape architects in order to distinguish the bureau from other competitors”. Although the hiring of landscape architects is common for projects of the HWBP programme to secure the position of spatial quality within the dike reinforcement projects, conducting an experiential value research is not (LA1b). In this context, it has been beneficial to have hired these particular landscape architects. However, the landscape architects are part of the larger engineering bureau Witteveen en Bos which also holds responsibility for creating the alternative solutions for the project (Witteveen en Bos, 2019). This can be seen as controversial since it is questionable whether the interests for spatial quality are not being de-emphasized due to the prioritization of other interests, such as, time and money. To prevent this from occurring, the waterboards often hire independent landscape architect bureaus to ensure spatial quality is taken into account sufficiently. The benefits that can be gained from this are that the

independent landscape architects are less influenced by technical requirements and procedures (LA1b). In contrast to this perspective, there are also benefits to hiring landscape architects from the same bureau as the engineering experts. According to the landscape architect (LA1b),

“The fact that we are part of the same engineering bureau is a strength as it means that we know what is going on and what is necessary to push the interests for spatial quality through the procedures.”

Agreeing with this statement, the landscape architect (LA1a) added, “there is a loss when an independent bureau merely provides a report on the research that has been undertaken”. It can therefore be argued that the communication between landscape architects and the engineers of the same bureau is superior to that of an independent bureau (LA1a). Furthermore, the landscape architect (LA1a) explained that,

“Landscape architects from an engineering bureau can form the link between the technicalities of a project and a design that appeals to the local environment. This is easier as a landscape architect from an engineering bureau rather than managing spatial quality on a separate track.”

Cultural heritage advisor

The cultural heritage advisor of the waterboard DOD has had an advisory role in the project in the creation of the spatial quality framework (CA1, PM1). As the cultural heritage advisor explained, “I have been involved in the project Stenendijk, but only from a distance.” This entails that the advisor has not been part of decision-making processes concerning the proposed solution. However, the cultural heritage advisor has been responsible for creating the internal heritage policy of the waterboard, which again, has been taken into account in the creation of the spatial quality framework (CA1).

Nodality

Stakeholder engagement

The stakeholder engagement process of the Stenendijk started early on in the orientation phase and lasted throughout the entire project (PM1). During the process, the cultural heritage ambitions of each of the stakeholders were taken into account through meetings with the municipality Zwartewaterland, the RCE and the province of Overijssel. At the start of the orientation phase, the waterboard contacted these stakeholders to inventory their interests and opportunities to create additional value rather than merely decreasing the flood risk of the dike (Witteveen en Bos, 2019).

First, the municipality was involved because it holds responsibility for the road on top of the dike and shares responsibility with all other stakeholders for the national monument. One of the additional values that was put forth by the municipality was to increase the visibility of the wall (Witteveen en Bos, 2019). This goal was shared by the waterboard, as they already deemed it necessary to restore the monument due to deferred maintenance on its part. To achieve the increased visibility, a sign with

historical information will be placed next to the dike (PM1). Second, the province of Overijssel was involved in the project as it provided a subsidy for the renovation of the monument. Furthermore, the province was responsible for the protection of Natura-2000 area that is situated between the stone wall and the river. The topic of nature has been discussed in great detail but there were no conflicting interests as the project will not impact the Nature-2000 area, (PM1). Third, the Cultural Heritage Agency (RCE) was involved from the start since the stone wall is a national monument. The RCE had an advisory role throughout the project wherein their heritage management experts advised the waterboard on how to preserve the monument (PM1). According to the project manager, “the advice of the RCE on these kind of objects weighs heavily even though they have no direct authority.” To be able to provide additional advice, a quality team has been created, consisting of the stakeholders mentioned above.

Spatial quality team

During the orientation phase the project team has been supported by an independent spatial quality team that has been set up separately from the project to advise on multiple dike reinforcement projects. This spatial quality team provided “solicited and unsolicited advice” to project teams of dike reinforcement projects (CA1). During the orientation phase, the spatial quality team has gathered two times to advise the project team and provided a final assessment of the preferred alternative (LA1b). Rather than having a controlling role, the spatial quality team acted as a “sparring partner” to discuss ideas with the project team and provide different perspectives on the design for the Stenendijk (CA1). According to the landscape architect (LA1b),

“The spatial quality team assisted the integration of cultural heritage for the project Stenendijk in four different ways. First, the spatial quality team included representatives from the province of Overijssel, the RCE and the municipality Zwartewaterland. Second, by going to the project area with the project team rather than discussing reports from the office. Third, by assessing the product, which is the preferred alternative. Fourth, by providing a framework at the start of the orientation phase.”

This framework, the spatial perspective on dikes in Overijssel (*Ruimtelijk perspectief Dijken Overijssel*), functions as a guiding document for dike reinforcement projects in the province of Overijssel (CA1). The framework highlights the qualities of dikes in the province and providing overarching principles through examples of dike reinforcement projects (Bosch Schlabbers, 2017). Additionally, the framework creates a basis for the assessment of the preferred alternative by comparing it with the principles outlined in the framework (LA1b).

Public participation

The public participation process involved various methods to inform the local residents and gather information as well as suggestions for the project. First, the waterboard published newsletters on the website which notified the local residents of the project. Second, information evenings were held to inform the local residents of

the project and gain feedback on the possible alternatives. At last, one-to-one conversations were held with the residents that live adjacent to the dike as they are directly affected by the project. During the public participation process, local residents stated that it was of 'great importance' to preserve the stone wall (Witteveen en Bos, 2019). This public support adds to the willingness of the waterboard, and other stakeholders involved, to preserve the cultural heritage. Additionally, local citizens and the local heritage association provided the waterboard with historical information in the form of stories, newspaper articles and photographs (SM1). According to the project manager,

“The neighbourhood has helped us a lot in providing an archive of information. This is particularly helpful as the waterboard does not have a major archive itself and therefore it is hard to find historical information.”

This information will be used to create the sign that describes the story of the Stenendijk in what the board of the waterboard referred to as “exposure of the Stenendijk.” according to the project manager. Furthermore, the information provided by the local citizens was used for newsletters that were published on the website of the waterboard to promote the project (SM1). According to the stakeholder manager,

“The support for the project and the involvement of citizens meant that the waterboard also had to pay attention to the participation process in order to maintain the public support.”

In this sense, having local citizens that are active in preserving cultural heritage assists to drive the public participation process. Separate from the public participation process of the waterboard, the landscape architects initiated their own public participation process for the experiential value research (LA1a).

Experiential value research

The experiential value research was initiated and designed by landscape architects from the consultancy bureau Witteveen & Bos and involved the inventory of values concerning the dike. Although the name of the experiential value research suggests it merely focusses on the experiential value, the research also analyses public views on the utility and future values. To gather information from the public, the research involved one-to-one conversations with local residents, an online survey and conversations on the dike with local citizens who would pass by. It is important to distinguish the experiential value research as a different instrument since it was primarily used to collect the opinions on the monument and the spatial quality of the project area (Witteveen en Bos, 2019a). Although the data gathered from the experiential value research is subjective rather than objective, the research has had three positive outcomes according to the landscape architect (LA1b). “First, the local citizens feel involved in the project. Second, we get an idea about which topics we can discuss with the stakeholders involved. Third, we get an idea about which values of the monument are most appreciated by the public.” The latter is relevant in the discussions about which values can be maintained or enhanced to take spatial quality into account (LA1a). According to the landscape architect (LA1b),

“The outcome of the experiential value research goes beyond the expert-led, objective valuation of the monument by allowing the public to share their experience and provide a subjective valuation.”

For the Stenendijk, this enabled a focus on enhancement of the experiential value because many local citizens showed an interest for additional resting places to be created next to the dike (LA1a, Witteveen en Bos, 2019a). Notably, functioning of the dike as a flood barrier scored higher than the other values as citizens deemed flood safety the most important aspect of the dike (Witteveen en Bos, 2019a).

Authority

Internal policy for cultural heritage

The internal policy for cultural heritage served as a starting point for the integration of cultural heritage and spatial quality in water management projects. The waterboard and the landscape architect bureau Bosch Schlabbers created the ‘policy for waterboard heritage and spatial quality’ in 2017 to guide all dike reinforcement project (Bosch Schlabbers landschapsarchitecten, 2017). This policy document provides guidelines, goals, and examples on how to manage cultural heritage and integrate spatial quality in the design of flood risk management projects (Waterschap Drents Overijsselse Delta, 2019). These goals formed the basis for the spatial quality framework and include,

- ‘Preserving the waterboard heritage.’
- ‘Strengthening the relationship between waterboard heritage and the living environment.’
- ‘Utilize the connecting force of waterboard heritage and spatial quality’ (Witteveen en Bos, 2019a).

Additionally, the internal heritage policy provides guidelines on how to deal with cultural heritage in decision-making processes of the waterboard (Witteveen en Bos, 2019a). However, according to the project manager, “these guidelines were not directly applied in the project.”

Spatial quality framework

Apart from the internal heritage policy, the outcome of the experiential value research as well as the information gathered from the stakeholder engagement and meetings with the spatial quality team, were applied in the creation of the spatial quality framework. This framework is ‘an instrument that allows for the identification of spatial qualities and opportunities early on in the project to provide input for the integrative planning process’ (Witteveen en Bos, 2019a). Additionally, the qualities set out in the spatial quality framework are taken into account during the iterative design process by evaluating the different alternatives according to the principles that are set out in the framework (SM1, CA1).

The spatial quality framework was created by the landscape architect bureau during the orientation phase. According to the landscape architect (LA1b),

“It has been a good decision to create the framework early on because it is important to describe the essential historic values before moving on. (...) The spatial quality framework included an objective description of the history surrounding the monument as well as a subjective description of the project area.”

The “objective description” is based on desk research by the landscape architect bureau and research on the built qualities by the ‘Monuments committee’ (*Monumenten commissie*) of the municipality Zwartewaterland. These expert-led research highlight the rather technical composition of the stone wall and key characteristics that are of historical value, such as the different sections of the stone wall. The “subjective description” comes forth from the experiential value research and involves a description on how the local citizens perceive the history of the dike, the characteristics of the area in general and how they want to experience the dike in the future (LA1b). A benefit of including local perspectives from local citizens and stakeholders, such as the province of Overijssel and the RCE, is that the spatial quality framework “sends a powerful signal that underlines the importance of spatial quality” (LA1b).

The historical and experiential descriptions of the area have resulted in several qualities and relating principles for spatial quality that have been taken into account during the decision-making process for selecting the preferred alternative. These qualities and principles include,

- Continuity of the dike ensemble: The continuity of the ensemble should be preserved and enhanced where possible.
- Characteristic of a sea dike: The dike is recognizable as a functional and historical element for water management conform the history of the Zuiderzee.
- Living heritage: The history of the Stenendijk provides perspective for flood risk awareness in the area. Therefore, it is preferred that the functionality of the entire ensemble is to be preserved and the different timelines remain visible.
- Minimalistic design and versatile use: It is preferable that the miscellaneous and informal uses of the dike are to be maintained and enhanced where possible.
- Panoramic route: The dike, as part of a panoramic route where users can experience nature, tranquillity, and space, should be preserved, and enhanced where possible (Witteveen en Bos, 2019a).

These principles are not only applied in the decision-making process for selecting a preferred alternative, but also in the design process for creating a definitive design which occurred during the planning phase. Herein, they formed the guiding principles on which the definitive design has been evaluated for the consequences on spatial qualities (PM1).

Additional to the principles for spatial quality, the spatial quality framework includes several recommendations to the waterboard for solidifying the interests for spatial quality during the planning and realisation phases. The most important recommendations for the use of policy instruments and the integration of cultural heritage include,

- ‘to explicitly take spatial quality and cultural heritage into account during the design process for the definitive design.’
- ‘to include the spatial quality team, the RCE and the municipality Zwartewaterland during the design process for the definitive design.’
- ‘to hire a landscape architect during the design process for the definitive design.’
- ‘to solidify the interests for spatial quality in the tendering process with the contractor responsible for the realisation’ (Witteveen en Bos, 2019a).

From these recommendations, only the first has been followed up by the waterboard as the waterboard has applied the spatial quality framework in the evaluation of the definitive design (PM1). As for the other recommendations, the waterboard did not hire a landscape architect or contact the spatial quality team during the planning or realization phase (LA1a). Furthermore, no specific requirements for spatial quality were made during the tendering of the contract. Instead, a specialist engineering bureau, Koningklijke Woudenberg, was hired for the restoration of the stone wall to ensure the preservation of the wall was realised adequately (PM1). According to the Landscape architect (LA1b),

“There is an inherent risk because we, as landscape architects, can only make recommendations and cannot control whether the waterboard follows up on them. Instead, it is the responsibility of the waterboard to secure the interests for cultural heritage themselves.”

As the waterboards have limited expertise to implement this themselves, securing interests for cultural heritage is often achieved by hiring experts through a tendering process (LA1b, PM1). Although hiring a specialist company for the restoration is another way of creating a suitable solution, it is still questionable whether it is the best solution for securing the interests for spatial quality and cultural heritage. As the landscape architect (LA1a) explained, “the waterboards lack an independent commission for securing interests for cultural heritage as is common for municipalities to have.”

Tendering documents

For the tendering of the contract, no requirements for spatial quality or cultural heritage have been made. Instead, the contractors that applied to work on the project had to create a plan up front on how spatial quality and cultural heritage would be taken into account. Afterwards, these plans were assessed by the waterboard to select a suitable contractor. This way, the interests for spatial quality and cultural heritage had to be guarded by the waterboard during the tendering process (PM1). The waterboard continued to fulfil this role throughout the planning and realisation phase

as the waterboard closely collaborated with the contractors. This was necessary since the total price of the project is to be determined after realization. According to the project manager,

“We made a shared risk document together with the contractor. (...) This document included possible risks, such as, damage to the stone wall. Additionally, it also included how the contractor would communicate with the local citizens, safety aspects and accessibility of the dike during constructions. (...) The funding that was reserved for these risks were set aside during the project. The contractor will get 50 percent of this reserve if it is not spent during the project. This is an incentive for him to deal with the risks as well as possible. To find the best solution so that he does not need the risk reservation. This way, we attempt to achieve quality.”

Additionally, the main contractor, Ploegam, was responsible for the application of necessary permits, including the monument permit that had to be required from the municipality. This way, the contractor also shared responsibility for dealing with the preservation of the cultural heritage values during the planning phase (PM1).

Treasure

Funds & Subsidies

Funds gathered for the project include funding on a national scale from the HWBP and regional funding provided by the waterboard and the province of Overijssel. First, the majority of the funding for the project comes from the HWBP. However, an important criterion to acquire this fund for specific components of the project is that these components enhance the flood safety. As the stone wall does not function as a flood barrier any longer, the HWBP was initially reluctant to pay for its restoration. Moreover, the costs for the restoration were redirected to the waterboard as the HWBP argued that the restoration was necessary due to deferred maintenance of the waterboard. To solve this issue, the stone wall has been decoupled from the dike on paper. This entails that the ground layer of the dike and the sheet pile, will function as a flood barrier on paper. The stone wall, however, functions as a ground barrier that hold the dike in place. Through this construction, the HWBP will subsidise 90 percent of the reinforcement of the flood barrier and the waterboard will finance the remaining 10 percent. The way the flood barrier has been subsidized is common for projects of the HWBP (PM1). As for the restoration of the stone wall, the HWBP will subsidise around 50 percent, due to the fact that the stone wall still functions as a ground barrier that holds the dike together. For the remaining costs of the restoration, the waterboard will provide 46 percent and the province of Overijssel will subsidise 4 percent.

The reluctance of the HWBP to fund the renovation is a direct result of the current stance towards spatial quality in dike reinforcement projects. This proved to be a barrier for restoring the stone wall, since it would have been difficult to apply for funding elsewhere. Only by decoupling the stone wall from the dike and arguing it still functioned in support of the dike, the HWBP was willing to provide 50 percent of the funding for the restoration (PM1). According to the project manager, “this is a grey area as the sheet pile itself would be suffice to hold the water even if the ground

around it would be taken away by a possible flood.” Concerning the subsidy of the waterboard, the project manager stated that,

“There is a tension between being proud about cultural heritage on the one hand, and the financial aspect on the other hand. This tension revealed itself when discussing the costs of the project with the general board of the waterboard. (...) When money is discussed with the general board, they become more critical and question whether it is necessary to include the renovation of the wall into the project.”

Adding to this argument, the stakeholder manager explained that,

“Because the maintenance of the monument is costly, there is less support from the general board for the restoration whereas we as officary argue that it is clear the renovation needs to be included in the project.”

At last, the subsidy provided by the province of Overijssel is part of a larger funding programme for the restoration of national monuments (Waterschap Drents Overijsselse Delta, 2021). The project manager explained,

“The waterboard applied for the subsidy from the province at an early stage of the project. We are grateful for the province covers 4 percent of the costs, but we don’t gain much from it.”

Therefore, it can be concluded that the additional funding from the province has not been a decisive factor in deciding whether to restore the monument (PM1).

Additional to the restoration of the monument, the waterboard has the desire to raise flood risk awareness by placing informative signs on the history of the stone wall next to the dike. This information partly follows from the historic data and stories that have been collected during the public participation process. However, there is a tension between the willingness to place the signs and the financial means to do so (PM1). The project manager explained that,

“On the one hand, the waterboard wants to tell the story of the Stenendijk, but on the other hand the waterboard thinks that the municipality has a responsibility to do so. (...) The waterboard thinks it is an opportunity but when the financial aspects are discussed, everyone starts to point at each other. The internal heritage policy could provide more guidance to this.”

In contrast to this statement, it is stated in the internal heritage policy of the waterboard that the waterboard has a goal ‘to improve visibility of its water related activities, the enjoyment of water and education (flood risk awareness). As owner or maintainer, the waterboard has a social responsibility to pay attention to waterboard heritage.’ This suggests that there is a gap between the willingness of the waterboard to include stories from citizens in its projects and has institutionalized attention for cultural heritage (PM1).

4.3 The policy instrument mix in the project Stenendijk

Throughout this chapter, the policy instruments for integrating cultural heritage in the project Stenendijk have been discussed. Together, these policy instruments form the policy instrument mix as seen in Table 5. Looking at the policy instrument mix, several aspects stand out. First, it can be concluded that various instruments from all categories of the NATO-typology have been applied in the project. This highlights the diversity of the waterboards efforts for integrating cultural heritage. Second, the policy instrument mix shows that role of the landscape architect bureau in securing the interests for spatial quality and cultural heritage has been substantial. Mainly, because the landscape architects were involved in the decision-making and design processes concerning the proposed solutions, initiated the experiential value research, and created the spatial quality framework. The relation between these instruments shows that the application of landscape architects went beyond the landscape architect as an organizational instrument as it also involved nodality and authority instruments. Third, the involvement of the cultural heritage advisor and the influence of the internal policy for cultural heritage have been limited. Instead, expertise for preserving heritage was derived through stakeholder engagement and the involvement of the spatial quality team as well as the landscape architects. This shows that the waterboard mostly relied on external expertise for securing the interests of cultural heritage in the proposed solution. In contrast, the waterboard did apply its internal expertise in other aspects of the project including the attainment of co-funding and subsidies by establishing agreements with the HWBP and the province of Overijssel. Furthermore, the waterboard collected and dispersed historical information and stories about the stone wall through public participation. Before drawing conclusions from these initial findings, it useful to first discover how policy instruments are applied in a similar flood risk management project. The following chapter will, therefore, provide a second case study that will allow for the comparison of applied policy instruments.

Organization	Nodality	Authority	Treasure
<p>Landscape architects -Witteveen & Bos consultancy</p> <ul style="list-style-type: none"> • <i>Design of the proposed solution</i> 	<p>Stakeholder engagement -Waterboard DOD -Municipality Zwartewaterland -Province of Overijssel -RCE</p> <ul style="list-style-type: none"> • <i>Stakeholder meetings</i> • <i>Identifying ambitions for cultural heritage</i> 	<p>Spatial quality framework -Witteveen & Bos consultancy</p> <ul style="list-style-type: none"> • <i>Analyses of heritage values</i> • <i>Principles for cultural heritage preservation</i> • <i>Recommendations for securing the interests for cultural heritage</i> 	<p>Co-financing -The waterboard DOD -The HWBP</p>
<p>Cultural heritage advisor -Waterboard DOD</p> <ul style="list-style-type: none"> • <i>Limited involvement in the project</i> 	<p>Public participation -Waterboard DOD -Local citizens</p> <ul style="list-style-type: none"> • <i>Information evenings</i> • <i>One-to-one conversations</i> • <i>Newsletters</i> <p>-Witteveen & Bos consultancy</p> <ul style="list-style-type: none"> • <i>Experiential value research</i> 	<p>Internal policy for cultural heritage -Waterboard DOD</p> <ul style="list-style-type: none"> • <i>Limited influence in on the project</i> 	<p>Subsidies -Province of Overijssel</p>
	<p>Spatial quality team -Municipality of Zwartewaterland -Province of Overijssel -RCE</p> <ul style="list-style-type: none"> • <i>Sparring partners</i> • <i>Assessment of preferred alternative</i> 	<p>Tender documents -Waterboard DOD -Collaborative alliance of contractors</p> <ul style="list-style-type: none"> • <i>No requirements for spatial quality or cultural heritage</i> 	

Table 5: The policy instrument mix of the project Stenendijk

Chapter 5 - Case study: the project Grebbedijk

In the previous chapter, the project Stenendijk has been discussed. This chapter will discuss the second case study which will allow for a comparison of the cases. First, the project of the Grebbedijk will be introduced by focussing on the cultural heritage component of the dike reinforcement project. Second, the planning of the project will be outlined. Third, the policy instruments that enabled the integration of cultural heritage in the project will be discussed following the NATO-typology. Finally, the policy instrument mix of the Grebbedijk is presented.

5.1 Introducing the project Grebbedijk

The story of the Hoornwerk as a monument

The project Grebbedijk involves the restoration of a fortification structure as part of a larger dike reinforcement project, 'the Grebbedijk' (See fig. 7). This unique project involves the application of the concept 'Building with Culture' to create flood resilience. To gain an understanding of what this project involves, it is important to start with the history surrounding the Hoornwerk. The Hoornwerk fortification is part of the larger Grebbelinie. This is a line of fortifications that was erected to inundate agricultural lands in order to prevent invaders from reaching the west of the Netherlands. Built in 1785, the Hoornwerk protected the sluice that was to be opened during an invasion to inundate the hinterland, making it one of the most important features in the entire line of defence. Additionally, the fortification protected the Grebbedijk which was important for the region as it provided flood safety and served as a road to the town of Wageningen (Visser & Schrijvers, 2017). The fortification was first used in 1795 during the French invasion but was abandoned afterwards. Only in 1936, the Hoornwerk would be utilized again for military purposes as part of the defence against Germany. Around this time, the fortification was reinforced with small bunkers that are still visible today (Rietberg, 2010). In May 1940, the Hoornwerk played an important part in the Battle for the Grebbeberg, where Dutch soldiers were quickly overrun by German troops (Visser & Schrijvers, 2017). Consequently, the Hoornwerk was abandoned and overtaken by nature up until today. Although the historical relevance and qualities of the Hoornwerk are barely visible, the rich history surrounding the Hoornwerk means that it is now recognized as a national monument (Rietberg, 2010).



Figure 7: The Hoornwerk and the Grebbedijk (Grebbedijk, 2021).

An integrative approach for the Grebbedijk

Currently, the Hoornwerk is being transformed from a dysfunctional military object to a functional defensive object for flood safety as part of the HWBP project, the Grebbedijk. Initiated in 2017 by the waterboard V & V, the project Grebbedijk concerns the reinforcement of the Grebbedijk and the adjacent Hoornwerk. This reinforcement is necessary as 5.5 kilometres of the dike do not meet the flood risk standards of 100.000 per year. This flood risk standard is exceptionally high due to the fact that a breakthrough of the dike leads to the flooding of the entire Gelderse vallei. This area has a population of 250.000 and the damages as a result of flooding would be approximately 27 billion euro (Waterschap Vallei & Veluwe, 2020). Although the main goal of the project is improving the flood protection function of the dike to the current standards for water safety, another goal has been added. This goal concerns the creation of additional value for the surrounding area and supporting other spatial developments (Grebbedijk, 2020). According to the project manager, “the incorporation of this second goal is a result of discussions by the Board of Government Advisors (*College van Rijksadviseurs*) concerning the motto smart and efficient” (PM2). It is argued by the Board of Government Advisors that this motto understates the importance of spatial quality in HWBP projects, and that the motto should become ‘smart and efficient’ (College van Rijksadviseurs, 2020). Following these discussions on the national level, the waterboard created several ambitions for the enhancement of spatial quality, including to aim to increase the visibility of the Hoornwerk (PM2).

Explanation of the chosen alternative

The integrative approach of the waterboard V & V has led to a solution whereby the flood risk is decreased and the Hoornwerk is restored to its original height of the year 1785. This solution forms a synergy between flood risk management and cultural heritage management, as it provides flood protection to the area and enables the restoration of the Hoornwerk. Hereby, the Hoornwerk will become more visible as a monument, which enhances the spatial quality of the area. However, there were two other alternative solutions that have been considered. The first alternative involved the reinforcement of the Grebbedijk by placing a hardened surface on the outside of the dike. The second alternative would have imposed negative effects on the cultural heritage values of the Hoornwerk as they decrease visibility of the historical structure. The chosen alternative, on the other hand, results in an increased visibility of cultural heritage values through heightening the monument by two meters. The reinforcement of the fortification means that the Grebbedijk will not require further reinforcement in this section as the required standards will be reached by reinforcing part of the fortification outside of the dike (See fig. 8) (Grebbedijk, 2021). Additionally, the Hoornwerk is part of the Grebbelinie and has therefore received the national monument status. Despite this protective status, the waterboard did not perceive the development of the Hoornwerk as a legal risk for development, as is sometimes the case. Instead, the inclusion of the Hoornwerk into the project was perceived as an opportunity to enhance the cultural heritage values (PM2). What will happen to the fortification section inside the dike will be decided upon in the planning phase (PM2). The current alternatives are to elevate it to the level of 1785 as well, or to transform it to how it appeared in a different timeline such as the second world war. Referred to as 'Building with culture', this scenario has been chosen to be implemented as it creates co-benefits between cultural heritage and flood risk management (Grebbedijk, 2021).

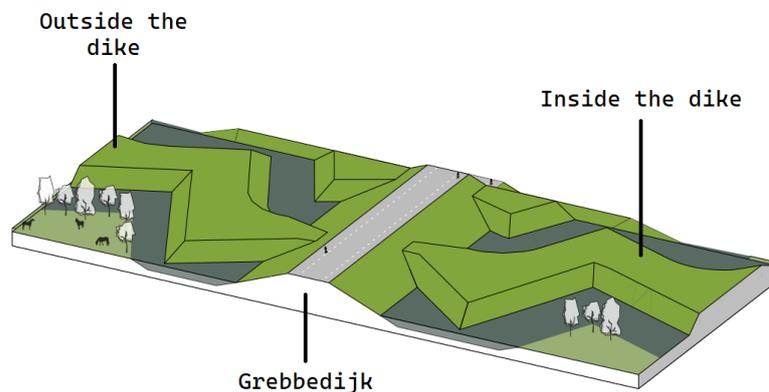


Figure 8: Sections of the Hoornwerk

Cultural heritage as a component of spatial quality

Restoring the Hoornwerk will not only benefit flood risk management by reinforcing the dike up to the current standards but also enhance or transform values for spatial quality including utility value, experiential value, and future values. First, the utility value of the Hoornwerk will be transformed from a dysfunctional military object to a functional defensive object for flood safety. Thereby, a new storyline will be added to the history of the Hoornwerk (CA2). Second, the experiential value will increase as the Hoornwerk, now hardly visible due to its lowered elevation, will be recognizable as landmark due to its elevation (PM2). Additionally, increased attention for the stories surrounding the Grebbedijk and an improved connection to the Grebbelinie as a whole will enhance the experiential value (CA2, LA2b). Third, the future value of the Hoornwerk will be enhanced because the new function of the fortification as a flood barrier also entails that the waterboard ensures the Hoornwerk is maintained (LA2b).

Explaining the planning of the project

The timeline of the project is comprised of three phases including the orientation-, planning-, and realisation phase (See fig. 9). The orientation phase started in 2017 and ended mid-2020. The goal of this phase was ‘to create a preferred solution for the water safety issue that is supported by societal and governmental stakeholders’ (Grebbedijk, 2020). Therefore, the inclusion of relevant stakeholders at the start of the orientation phase was important. The waterboard V & V has been the central node for the exchange of information to all stakeholders as initiator of the project. These stakeholders include: the provinces of Gelderland and Utrecht, the municipalities of Rhenen and Wageningen, Rijkswaterstaat, Utrechts landschap and Staatsbosbeheer (Grebbedijk, 2021). Furthermore, the orientation phase included a participation process to consider societal interests which involved several information evenings, individual consultation sessions and the creation of a focus group called the Dike thinkers (*Dijkdenkers*). This way, the waterboard involved local residents, private parties and NGOs for nature, cultural heritage and recreation. For the creation of the plans and the possible alternative solutions the waterboard contracted the technical engineering company Fugro as well as the landscape architect bureaus FLUX and Feddes-Olthof. The latter had a secondary task of creating a spatial quality framework to identify opportunities to create additional value for the project area and to enhance spatial quality (FLUX, 2019). These stakeholders have been divided into a project team and process team (See table 6). The creation of the process team as part of the stakeholder engagement process ensured that all relevant stakeholders were included in the decision-making process. This also meant that the project team had fixed group of actors that could provide feedback on their plans and ideas. This occurred during the design ateliers were held throughout the orientation phase. The project team, the process team and the dike thinkers discussed ambitions for the project during these design ateliers. According to the landscape designer of FLUX,

“The project team was responsible for the creation of the alternative solutions. These were then presented to the process team which had a controlling role and provided feedback on the designs.”

Project team	Process team
<ul style="list-style-type: none"> - Waterboard Vallei en Veluwe - FLUX landscape architects - Fugro technical engineering 	<ul style="list-style-type: none"> - Provinces of Utrecht and Gelderland - Municipalities of Rhenen and Wageningen - Utrechts landschap - Staatsbosbeheer - Rijkswaterstaat

Table 6. Actors and stakeholders in the project Grebbedijk

Currently, the project is in the planning phase that started mid-2021 and will end in 2025 after which the project will be realised. This is relatively long, when compared to the planning phase of the Stenendijk, as the project Grebbedijk entails a larger project area with different sections and includes a wider development of the surrounding area. The goal of the planning phase is to elaborate on the design of the preferred alternative to guarantee the obtainment of permits for the execution of the plan (Grebbedijk, 2020).

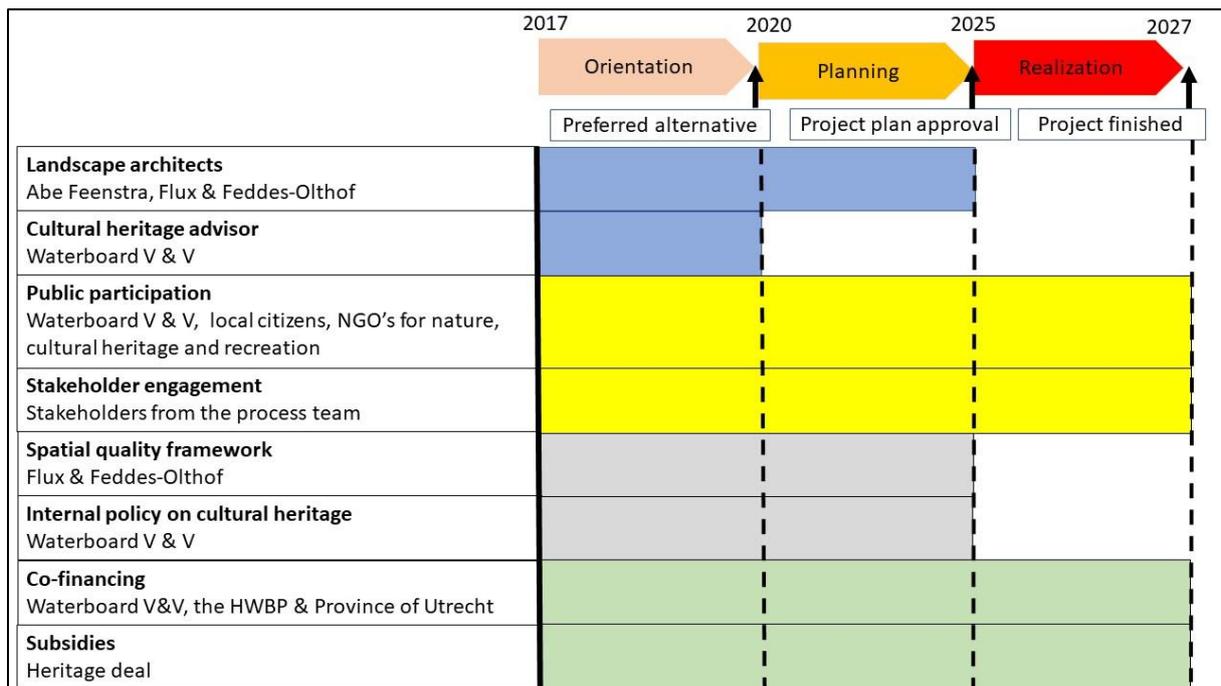


Figure 9: Application of policy instruments during the project Grebbedijk.

5.2 Applied instruments in the project Grebbedijk

Organization

Landscape architects

To ensure spatial quality and cultural heritage are taken into account in the project Grebbedijk, three different architect bureaus have been contracted by the waterboard. First, architect bureau Abe Feenstra has been included during the start of the orientation phase. The task of this landscape architect was to identify ambitions for cultural heritage (Veenstra, 2017). To inventory additional ambitions for the area, a work session has been held with the process team and local citizens that were included in the public participation process.

Following the identification of ambitions, the project team began to analyse the project area in greater detail and link the ambitions to the water safety issue. For this task, the landscape architect bureau FLUX, and the technical engineering company Fugro were contracted (Grebbedijk, 2020). In contrast to the Stenendijk, the project manager explained that

“The decision was made to contract a landscape architect bureau that was not connected to the engineering company in order to prevent spatial quality from being snowed under and not fully be taking into account. This was also advised by the national advisors from the Board of Government Advisors.”

The role of the landscape architects was twofold: to lead the design process for the creation of the alternative solutions and to create the spatial quality framework (PM2, LD2). During the initial design process, the landscape architects presented ideas and designs to the process team which provided room for discussion concerning the alternative scenarios. However, after initial designs were made, the engineering company took over this leading role to create more concrete plans. Thereafter, the landscape architects gained an advisory role on how the design could be improved to enhance spatial quality in the area. The landscape designer explained,

“We tried to figure out, together with the stakeholders, which ambitions could be included in the project. After that, the engineering company became more important as they were responsible for translating ideas into concrete designs, together with us.”

During the design process, it became apparent through calculations of the technical engineering company that heightening the Hoornwerk by two meters would decrease the flood risk to the acceptable standards. The landscape architects promoted this solution as the restoration would increase the visibility of the Hoornwerk. The increased visibility enhanced the spatial quality of the area as the heritage provides additional value (SM2). According to the stakeholder manager “this combination made that we could seize the opportunity for the win-win situation.” Furthermore, the landscape designer explained that,

“The need to create a connection between the dike reinforcement and the Hoornwerk became apparent when the ambitions for the project were discussed. The Hoornwerk had a strong material link to the water safety issue.”

This also becomes apparent in the spatial quality framework that has been created by the landscape architect bureau (FLUX, 2019).

Another landscape architect bureau, Feddes-Olthof, has been assigned to create a second spatial quality framework at the start of the planning phase. According to the landscape architect, “the concrete role that we were assigned for was to act as the guardian of spatial quality”. Again, the decision was made to separately contract a landscape architect that was not connected to the engineering company. A benefit of this, according to the landscape architect, is that

“It creates a triangular division between the waterboard, engineering company and the landscape architects, which does justice to the spatial component of the project. (...) It ensures that the spatial quality framework that we create, does not end up being just another report within the pile of research that have been created for the project. (...) I am also unsure whether a landscape architect can work autonomously within an engineering company.”

Another benefit is that the newly contracted landscape architect provides a different perspective on how to integrate cultural heritage in the project. According to the landscape architect,

“The waterboard told us that there are some new developments in the planning phase, which require the creation of another spatial quality framework. We looked at the previous spatial quality framework and thought, how can we improve upon this? (...) Currently, we are putting more emphasis on the assignment and the Hoornwerk. (...) Hereby, we are focussing on the connection between the Hoornwerk, its connection to the Grebbelinie and the surrounding area”

Nodality

Stakeholder engagement

The stakeholder engagement process started early on in the orientation phase and continued throughout the project by including the relevant stakeholders in the process team. At the start of the orientation phase, the process team involved with the identification of ambitions for the project. This was important as the project manager explained, “the Grebbedijk is not merely a dike reinforcement project but also a development project for the wider area which involves ambitions of our partners.” These ambitions involve the development of nature, stimulating recreation as well as multiple ambitions for cultural heritage (PM2). First, the Hoornwerk situated next to a Natura-2000 and the ambition is to maintain current nature values. However, this conflicts with the desire to increase the visibility of the Hoornwerk as the heightening of the hoornwerk would entail that vegetation has to be removed. Although this dilemma was already identified during the orientation phase, the decision-making process to resolve this conflict will occur during the planning phase (PM1, SM1). Second, the ambition to stimulate recreation did not affect the Hoornwerk (PM1). At

last, the ambitions for cultural heritage involved the enhancement of the visibility of the Hoornwerk and other cultural heritage objects surrounding the dike. However, these other cultural heritage objects, including a monumental stone factory, have not been included in the project. According to the landscape designer, “the reason that these ambitions could not be taken into account was that they lacked benefits for water safety.” The ambition to improve the visibility of the Hoornwerk is initiated by the waterboard and is also supported by the province of Utrecht. This ambition is derived from a policy document that has been created by the province, the ‘ambition document Sterke lekdijk & Grebbedijk’ (*ambitiedocument Sterke Lekdijk & Grebbedijk*) (Provincie Utrecht, 2018). Within this document, ambitions for cultural heritage have been set out to provide guidance for an integrative approach towards dike reinforcement projects (Provincie Utrecht, 2020). According to the stakeholder manager, “the existence of this policy, and the involvement of the province as a stakeholder, meant that increased attention was asked for cultural heritage.”

Apart from assisting in the identification of ambitions, the process team was present during design ateliers and the decision-making process concerning the different alternatives (LD2). These design ateliers were prepared by the landscape architects in cooperation with the waterboard and the engineering company (SM1). The stakeholder manager explained that, “using this setting, the interest for spatial quality was weighed heavily”. The design atelier provided an opportunity to present the different alternative designs to the stakeholders. According to the landscape designer, “the process team had a controlling role and gave feedback during our presentations.” Additional to the stakeholders from governmental organizations, the dike thinkers focus group was also included during the design ateliers as part of the public participation process (SM2).

Public participation

The public participation process was organised by the waterboard and had the aim ‘to realize a safe and manageable dike, increase flood risk awareness, and create shared ambitions for the development of the area’ (Grebbedijk, 2020). To achieve this goal, four methods to exchange information with local citizens were applied. The first participation method concerns information evenings that were organized for all citizens who were interested in the project. Second, one-on-one conversations were held with citizens that lived in or next to the project area and were directly affected. Third, newsletters were distributed including historical information on the project. Fourth, the focus group *Dike thinkers* was created and consisted of representatives from individual local inhabitants, business owners and representatives of local nature-, and water sport organisations (Grebbedijk, 2020, LD2). According to the stakeholder manager,

“The Dike thinkers are very much involved in the project and are good in representing their interests. This makes it hard to bridge these interests sometimes. (...) It is also hard to create win-win situations sometimes because some aspects are obligatory. An example of this is the legislation concerning nature. How do you make sure nature is not affected during the renovation of the Hoornwerk?”

Additionally, the landscape designer stated that “cultural heritage was never on the forefront of the discussions because other interests such as nature and water sport opposed one another.” These examples suggest that conflicting interests can pose barriers to the integration of cultural heritage in both a direct and indirect way. Notably, the stakeholder manager explained,

“There is an opportunity for improvement of the public participation process as there was a member of the focus group that represented the visitors centre Grebbelinie which could have provided the project team with historical information on the Hoornwerk. However, as it was only discovered after the design ateliers that this member of the focus group was a cultural heritage expert, the information could not be used at that time. Nevertheless, the cultural heritage expert was interviewed to gain additional historic information for the application of additional funding for cultural heritage.”

This can be perceived as a missed opportunity for identifying ambitions for cultural heritage early on in the orientation phase. However, the involvement of the cultural heritage expert suggests that active public participation can assist in the application for additional funding for cultural heritage. This makes it an opportunity for the integration of cultural heritage.

Cultural heritage advisor

The role of the cultural heritage advisor of the waterboard in the project has been limited. Rather than having an influential role in the decision-making process with the project and process teams, the cultural heritage advisor stated that,

“My inclusion in the project has been very ad hoc. I have been questioned a couple of times about cultural heritage. About which cultural heritage objects are relevant to the project and which of these objects are worth the effort to include in the project. The Hoorwerk is one of these objects.”

This suggests that the cultural heritage advisor has had limited influence and authority within the project Grebbedijk even though input could have been provided by the cultural heritage advisor in creating the spatial quality framework. An example of a missed opportunity for integrating cultural heritage in the project presented itself as the cultural heritage advisor stated,

“I do not see the Hoornwerk as an individual object, but as a part of the wider Grebbelinie. The province of Utrecht has, for this reason, renovated various components of this defensive line. For example, they have placed concrete sandbags next to cultural heritage objects of the Grebbelinie, so it becomes visible that they are part of the bigger picture (see fig. 8). This could add additional value to objects like the Hoornwerk.”

This example shows that the project Grebbedijk could miss out on opportunities for the integration of cultural heritage because the cultural heritage advisor was not directly involved in the orientation phase. Apart from this limited role in the project, the cultural heritage advisor has been responsible for creating the internal heritage policy of the waterboard (CA2).



Figure 10: Characteristic concrete sandbags of the Grebbelinie located on the Hoornwerk (FLUX, 2019).

Authority

The spatial quality framework

The spatial quality framework, created by the landscape architects, provides guiding principles for spatial quality. Hereby, it gives direction to the decision-making process concerning the alternative scenarios. The content of the framework consists of an analysis of the landscape characteristics, including the importance of the Hoornwerk for spatial quality. Since the process of creating the spatial quality framework ran parallel to the public participation process, the landscape architects were able to incorporate insights from all stakeholders (LD2).

The guiding principles for spatial quality that are relevant for the Hoornwerk include:

- Variation in maximum of 4 areas: The Hoornwerk is recognizable as an individual element in the landscape and should be dealt with as a separate area. However, the dike is also a continuous line in the landscape which should remain
- Experience of elements and places along the dike: The Hoornwerk is visible from the dike, and it is recognizable as one object, even though it is crossed by the Grebbedijk. Therefore, it is important that the Hoornwerk should not be broken up in two parts but remain recognisable as one object instead (FLUX, 2019).

Both the analysis and the principles that followed from it provided a framework for the assessment of spatial quality that was applied to the decision-making process surrounding the three alternative scenarios. Additionally, the guiding principles have been incorporated in the environmental impact assessment (MER) to integrate spatial quality and highlight its importance in comparison to other interests included in the assessment (FLUX, 2019). At last, the spatial quality framework can be applied in the planning phase and the implementation phase to evaluate the enhancement of spatial quality (SM2).

The internal heritage policy

The waterboard V & V has created an internal policy for the integration of cultural heritage in water management projects. The goal of this policy is to ‘provide an insight into the number and state of cultural heritage objects and how maintenance should be provided for’ (Waterschap Vallei & Veluwe, 2019). This entails a ranking within the list of monuments based on the ownership of the objects and whether they have a function in current water management practices of the waterboard. Herein, it is stated that the objects that are owned by the waterboard, and that are still functional in current water management, are deemed more important than objects that are neither owned nor in function. Notably, no concrete guidance is given by the document on how to manage these cultural heritage object in projects wherein the waterboard is not the landowner. This also includes the project Grebbedijk wherein the NGO, the landscape of Utrecht (*Utrechts landschap*) is the owner of the land (Waterschap Vallei & Veluwe, 2019). According to the cultural heritage advisor,

“It is often unclear who should take responsibility for financing restoration of cultural heritage objects. It can be the waterboard, the municipality or other landowners. It can help if it becomes clearer how to get to a financial agreement.”

The restoration of the Hoornwerk forms an example of this issue as the finance for the project is shared by multiple parties. This necessitated the creation of agreements on which party is responsible for the funding of individual parts of the project. Indeed, the internal heritage policy of the waterboard could provide guidance on how to come to these agreements in a more efficient way, as it is currently a barrier to the integration of cultural heritage. As the project manager explained, “In the end, everything has to be paid for. If something does not help to increase flood safety, a budget needs to be created by other partners.”

Treasure

Funds and subsidies

The funding of the project consists of both national funding and regional funding. The former is part of a subsidy from the HWBP. This subsidy will cover 90 percent of the costs for the outer part of the Hoornwerk that functions as a flood barrier. The remaining 10 percent required for the reinforcement of the flood barrier will be covered by the waterboard itself (PM2). Additional funding is required to restore the inner side of the fortification, which will not function as a flood barrier, since the HWBP will only provide funding for the decrease of flood risk according to the motto sober and efficient (SM2, PM2). The province of Utrecht has, therefore, taken responsibility for this funding by allocating 400.000 euro to the restoration project. Furthermore, the province of Utrecht has applied for additional funding from the ‘Heritage deal’ (*Erfgoed deal*). This is a collaboration between the national government, provinces, municipalities, and NGO’s that provides funding to innovative projects where synergies are created between spatial development and cultural heritage. As the restoration of the Hoornwerk fortification will also provide flood protection, it is coined ‘building with culture’. Because of this unique synergy, the heritage deal will provide an additional funding of 500.000 euro for the

realization of the project (Erfgoed deal, 2021). The active participation of the cultural heritage expert, which has been identified through the public participation process, assisted the waterboard in applying for the heritage deal by providing historical information. Even though the funds from the province and the Heritage deal are only applicable to the part of the Hoornwerk located inland and do not increase flood safety, the stakeholder manager stated that,

“The Heritage deal has been decisive for the agreement to restore the fortification section inside the dike. (...) Together with the matching subsidy of the heritage deal, there was enough funding to achieve the ambition of restoring the Hoornwerk”

This was also confirmed by the cultural heritage advisor who stated, “a subsidy like the Heritage deal is decisive as it convinces decision-makers to do more, rather than choosing for the minimalistic alternative.”

5.3 The policy instrument mix in the project Grebbedijk

The policy instruments mix that is applied for the Grebbedijk shows similarities to the mix that is used for the Stenendijk. Various policy instruments have been applied to secure the interests for cultural heritage within the project Grebbedijk (See table 7). The policy instruments mix of the project Grebbedijk includes all policy instruments that were applied in the Stenendijk project, apart from creation tender documents and the involvements of the spatial quality team. Similar to the project Stenendijk, the cultural heritage advisor of the waterboard was involved in the project and has created the internal heritage policy for the waterboard V & V. However, the influence of these instruments on the project Grebbedijk was limited. Apart from these similarities, there are also multiple differences that can be found by focussing on the instrument mix. First, the waterboard V & V contracted three landscape architect bureaus as opposed to the single architect bureau that was included in the project Stenendijk. This has led to the creation of two spatial quality frameworks. Second, the public participation process involved information evenings, one-to-one conversations, dispersal of newsletter and the creation of a focus group. In contrast to the project Stenendijk, the public participation did not include an experiential value research. Third, the waterboard V & V attained funding for the project by co-financing with the HWBP and the Province of Utrecht. Additional funding was gained by applying for the Heritage deal. Fourth, the waterboard created a process team which included the relevant stakeholders for the project. This process team was actively engaged in design ateliers and stakeholder meetings which assisted in the identification of interests and the creation of a shared consensus. The similarities and differences between the projects are a starting point for a more elaborate comparison between the case studies, which will be the core of the following chapter.

Organization	Nodality	Authority	Treasure
Landscape architects - Abe Veenstra landscape architect - FLUX landscape architects - Feddes-Olthof landscape architects <ul style="list-style-type: none"> • <i>Design of the proposed solution</i> 	Stakeholder engagement - Project team - Process team <ul style="list-style-type: none"> • <i>Stakeholder meetings</i> • <i>Design ateliers</i> • <i>Identifying ambitions for cultural heritage</i> 	Spatial quality frameworks - FLUX landscape architects - Feddes-Olthof landscape architects <ul style="list-style-type: none"> • <i>Principles for cultural heritage preservation</i> • <i>Recommendations for securing the interests for cultural heritage</i> 	Co-financing - Waterboard V & V - HWBP - Province of Utrecht
Cultural heritage advisor - Waterboard V & V <ul style="list-style-type: none"> • <i>Limited involvement in the project</i> 	Public participation - Waterboard V & V - Local citizens - Local NGO's <ul style="list-style-type: none"> • <i>Consultation evenings</i> • <i>One-to-one conversations</i> • <i>Newsletters</i> • <i>Focus group the dike thinkers</i> 	Internal policy for cultural heritage - Waterboard V & V <ul style="list-style-type: none"> • <i>Guiding principles for managing cultural heritage</i> • <i>Limited influence in on the project</i> 	Subsidies - Heritage deal

Table 7. The policy instrument mix for the project Grebbedijk

Chapter 6 – Comparing the case studies

The aim of this study is to explore how policy instruments can enable the integration of cultural heritage management and flood safety in flood risk management projects. To achieve this aim, the cases of the Stenendijk and the Grebbedijk have been studied in-depth and set out in the previous chapters. In this chapter, the two cases will be compared. First, the applied cultural heritage management approaches and outcomes for cultural heritage will be discussed. Second, an overview will be provided of the applied instruments per case, which shows the key observations for each policy instrument mix. Subsequently, a comparison will be made between the policy instrument mixes of the case studies.

6.1 Approaches and outcomes for cultural heritage

Different cultural heritage management approaches have been taken in both projects. Following the three heritage approaches described by Janssen et al. (2017), including the sector-, factor-, and vector approaches, it can be concluded that neither of the cases applied one specific approach to manage cultural heritage. In the project Stenendijk, the decoupling of the function of the Stone wall as a flood barrier suggests that a sectoral approach is taken to isolate and preserve the stone wall. This meant that a more expensive measure had to be taken, in the form of a sheet pile, to ensure flood safety. As such, the focus on preservation of the stone wall posed a barrier to flood risk management. At the same time, the presence of the Stone wall was used to gain public support for the flood risk management project which entails that also a factor approach is taken by the waterboard. However, there is no sign that a vector approach is taken since the stories and historic information were not applied as a source of knowledge for the restoration of the stone wall or the chosen solution overall. This places the Stenendijk between the sector- and factor- approaches on the spectrum of cultural heritage approaches (See fig. 11).

For the project Grebbedijk, the Hoornwerk has not been isolated as a cultural heritage object. In contrast, the Hoornwerk has been incorporated in flood risk management by adding the function as a flood barrier. This means that the waterboard V & V did not applied a sector-approach. Similar to the Stenendijk, the stories and historic information that were gained from the public participation have been applied in newsletters to gain support for the project. This suggests that a factor-approach has been taken for the project Grebbedijk. In contrast to the project Stenendijk, the public participation process has assisted in attaining additional funding for incorporating cultural heritage, thereby effecting the outcome of the projects. Additionally, the narrative of the Hoornwerk as a military structure has been applied to create an integrative solution. This suggests that a vector approach is taken by the waterboard. The project Grebbedijk can, therefore, be placed in between the factor- and vector-approach on the spectrum of cultural heritage management approaches (See fig. 11).

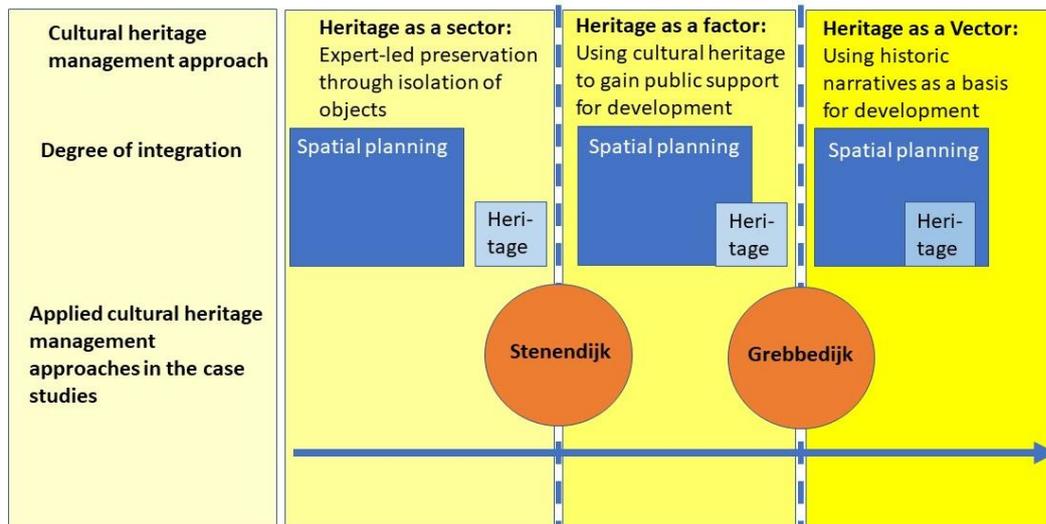


Figure 11: The applied heritage management approaches for the projects Stenendijk and Grebbedijk (Janssen et al., 2017).

The outcome for both projects has resulted in the overall enhancement of spatial quality and cultural heritage. This enhancement was achieved by focussing on the improvement of the experiential value in each case. Hereby, the visibility of the cultural heritage objects has been increased. This has positive effects for both cultural heritage and flood risk management as the objects will become more accessible to the public and it assist in raising flood risk awareness. Another similarity between the projects is that the utility value is altered. For the Stenendijk, the limited function of the object as a flood barrier has been removed and completely taken over by the new flood barrier. Although this can be perceived as a loss of utility value, it is important to realize that there is little opportunity for the object to be utilized as a flood barrier. Mainly, because this function was effectively lost before the start of the project. At the same time, parts of the wall will be restored using new bricks which adds a new time layer to the diverse heritage layers that are already present. As for the Grebbedijk, the object will gain a new function as it is transformed from a derelict monument to a flood barrier. Again, this will add additional value to the object by adding another layer to the object. In turn, these new layers will add to the future value which is also improved upon by the restoration of the objects that help to preserve the objects. This shows that the approaches towards cultural heritage in both projects allow for cultural heritage to be preserved in a dynamic way.

6.2 Comparing the applied policy instruments

The policy instrument mixes of the cases of the Stenendijk and Grebbedijk show that various instruments have been applied to integrate cultural heritage in the flood risk management projects (See table 8). The differences and similarities between the policy instrument mixes of both cases will now be discussed according to the NATO-typology.

	Organization instruments allow a government to act directly by applying its own resources to influence societal change.	Nodality instruments allow a government to act, as a central node in society, by gathering or exchanging information to influence societal change.	Authority instruments enable a government to impose societal change through legal or non-official power.	Treasure instruments enable a government to exchange money or goods to influence societal change.
Stenendijk	Landscape architects <i>-Single landscape architect bureau as part of larger consultancy firm</i>	Stakeholder engagement <i>-Stakeholder meetings</i>	Spatial quality framework <i>-Single framework with guiding principles for spatial quality and cultural heritage</i>	Co-financing <i>-The waterboard -The HWBP</i>
	Cultural heritage advisor <i>-Limited influence</i>	Public participation <i>-Information meetings -One-to-one conversations -Newsletters -Experiential research</i>	Internal policy for cultural heritage <i>-Limited influence</i>	Subsidies <i>-The province of Overijssel</i>
		Spatial quality team <i>-Advice and assessment of plans by multi-level collaboration of actors</i>	Tender documents <i>-No requirements for spatial quality or cultural heritage</i>	
Grebbedijk	Landscape architect <i>-Multiple independent landscape architect bureaus</i>	Stakeholder engagement <i>-Stakeholder meetings -Process team -Design ateliers</i>	Spatial quality frameworks <i>-Multiple frameworks with guiding principles for spatial quality and cultural heritage</i>	Co-financing <i>-The waterboard -The HWBP -The province of Utrecht</i>
	Cultural heritage advisor <i>-Limited influence</i>	Public participation <i>-Information meetings -One-to-one conversations -Newsletters -Focus group</i>	Internal policy for cultural heritage <i>-Limited influence</i>	Subsidies <i>-The Heritage deal</i>

Table 8: The policy instrument mixes for the projects Stenendijk and Grebbedijk

Organization

The organizational instruments that have been applied in both case studies are similar. First, landscape architects have been employed by both waterboards to secure the interests for spatial quality. However, the landscape architects of both cases differ as there is only one landscape architect bureau, from a larger consultancy firm, involved in the project Stenendijk. In contrast, three independent landscape architect bureaus have been involved in the project Grebbedijk. Second, cultural heritage advisors of the waterboards have been involved in both projects. However, their influence has been limited.

Landscape architects

The waterboards of both cases have hired landscape architects to secure the interests for spatial quality and cultural heritage. To elaborate on how the landscape architects have contributed to the projects, the differences and similarities between landscape architect bureaus will be discussed below.

The first notable difference between the projects concerns the use of landscape bureaus. For the project Stenendijk, the landscape architects were employed by a consultancy bureau which also provided engineers for the technical aspects of the project. In contrast, the three landscape architect bureaus contracted for the Grebbedijk were all independent bureaus. The latter construction is promoted by the Board of Government Advisors, as it ensures that the interests for spatial quality are secured independently from the interests of the engineering company. Furthermore, it is doubted whether landscape architects are completely autonomous when they are employed by an engineering company. However, the projects of the Stenendijk and Grebbedijk both provided evidence to argue the contrary. First, the landscape architects involved in the project Stenendijk have been able ensure spatial quality has been taken into account. A benefit of this construction is improved communication between landscape architects and the engineers. Another benefit is that the interests of spatial quality have been more easily translated throughout technical procedures. Second, the engineering company of the project Grebbedijk assisted in the enhancement of spatial quality. It was the engineering company that provided the calculations which showed the Hoornwerk could be elevated to the level of 1785 to ensure flood safety. This suggests that engineering companies play an important role in the enhancement of spatial quality as well. The assumptions that a landscape architect under employment of an engineering company cannot work autonomously or secure the interests for spatial quality might therefore be made prematurely. Instead, it suggests that engineering companies, and the landscape architects that form part of it, are able to secure the interests for spatial quality and cultural heritage in a similar fashion as an independent landscape architect bureau.

A second difference between the projects is that for the project Stenendijk, the landscape architects were only involved during the orientation phase. During this period, recommendations were made by the landscape architects for the upcoming phases of the project. However, these recommendations have largely been neglected by the waterboard. Although this had no negative effects for spatial quality in the

outcome of the project, it could have posed a risk to the integration of spatial quality and cultural heritage. Namely, because the design could have been altered in the planning phase to benefit or negatively affect spatial quality. This meant that the responsibility to guard the interests for spatial quality and cultural heritage rested on the shoulders of the waterboard and the contractors during the remainder of the project. This shows that there is a gap between the planning and implementation wherein the interests for spatial quality and cultural heritage are not secured. In contrast, landscape architects involved in the project Grebbedijk were present in both the orientation and planning phase of the project, albeit being contracted from three different landscape architect bureaus. This will possibly enable an improved design of the preferred alternative, which benefits spatial quality and the integration of cultural heritage. Mainly, because the landscape architect, who was involved in the planning phase, strived to improve the connection between the Hoornwerk and the wider Grebbelinie. This was previously overlooked by the first landscape architects involved in the orientation phase as they mainly focussed on the Hoornwerk. Therefore, it can be argued that the involvement of multiple landscape architect bureaus provides a differentiated perspective. This may lead to the enhancement of spatial quality and cultural heritage.

Cultural heritage advisors

The role of the cultural heritage advisors has been limited in both projects. For the project Stenendijk, the cultural heritage advisor has only been able to provide input for the spatial quality framework. Therefore, the influence of the cultural heritage advisor on outcome of the project was indirect. Similarly, the cultural heritage advisor of the project Grebbedijk had limited the opportunity to provide input during the project as the advisor was only involved at the end of the orientation phase. The limited involvement of cultural heritage advisors suggests that waterboards primarily rely on external expertise to integrate cultural heritage. This can be perceived as a missed opportunity since the cultural heritage advisors have the knowledge and experience to assist in integrating cultural heritage at an early stage in the project.

Nodality

The nodality instruments that have been applied in both case studies are similar yet differ to some extent. Both waterboards have initiated stakeholder engagement and public participation processes to act as a node between stakeholders and citizens. However, the policy mixes of the cases differ as a spatial quality team was involved in the project Stenendijk, whereas the project Grebbedijk did not include a spatial quality team. Additionally, the methods that were applied by the waterboards for the stakeholder engagement and public participation processes differ.

Public participation

The public participation process of both projects was initiated by the waterboards who actively involved the public in the project through various methods. In both cases, citizens supported the preservation of the cultural heritage objects. For the project Stenendijk, the actively involved citizens had a reinforcing effect on the public participation process. The waterboard felt inclined to do more with the information that was provided by the public. This was achieved by including stories of citizens in the newsletters that were sent to local citizens. Additionally, members of the public provided historical information to the waterboard on their own initiative. This information will be used to create signs that will improve the visibility of the cultural heritage object, and as such raise flood risk awareness. This entails that public participation can provide opportunities for integration of cultural heritage that benefit both sectors. For the project Grebbedijk, the public participation process involved various stakeholders with diverse interests for the project. This diversity meant that the ambitions for cultural heritage were overshadowed by the interests for other components of the project, such as nature conservation. Moreover, the need to renovate the Hoornwerk conflicted with the interest to conserve the nature that is currently present in the project area. The discussions that came forth from the public participation process show that conflicting interests pose a barrier to the integration of cultural heritage in both a direct and indirect manner. As the interests for cultural heritage were overshadowed by other interests, a missed opportunity for the integration of cultural heritage presented itself. The knowledge of one member of the public, a cultural heritage expert, was overlooked in the early stages of the orientation phase. This meant that the waterboard was not able to apply this expert knowledge in the creation of ambitions for cultural heritage. However, the cultural heritage expert was later contacted by the waterboard to assist in the application of additional funding. This suggests that public participation can assist in the attainment of additional funding for the preservation of cultural heritage.

Experiential value research

Within the project Stenendijk, the landscape architects initiated the experiential value research that was aimed to gather public opinions on the values surrounding the cultural heritage object. As this nodality instrument is not common to be applied for flood risk management projects, it added to the instrument mix of the waterboard to take spatial quality and cultural heritage into account. The experiential value research provides an additional opportunity to include perspectives of local citizens into the project as part of a factor approach. Especially, because the public participation process of the waterboard merely focusses on the inventory of ambitions for the project. The results of the experiential value research were included in the spatial quality framework which was, in turn, used as input for the preferred alternative. Thus, the experiential value research increased the influence of the public in the project by providing arguments for creating additional value. In contrast, the spatial quality framework of the project Grebbedijk, did not include public opinions on the cultural heritage component. Instead, opinions on the Hoornwerk were discussed during focus group meetings where they were overshadowed by discussions concerning other interests than the enhancement of cultural heritage. This shows that

it can be difficult to inventory and apply cultural heritage values without an instrument that is specifically applied for this purpose.

Stakeholder engagement

The stakeholder engagement processes of both projects were necessary as the waterboards do not have sole responsibility for the cultural heritage objects. This meant that several governmental agencies were involved in the decision-making processes that led to the chosen solutions. As such, the stakeholder engagement processes led to the uptake of additional ambitions for cultural heritage. For the project Stenendijk, the ambition to increase the visibility of the object was shared by the municipality and the waterboard, but it is yet unclear who is financially responsible for it. This unclarity about responsibility was perceived by multiple interviewees as a barrier for the integration of cultural heritage in the project. For the project Grebbedijk, there was more clarity about the division of responsibility as the waterboard takes responsibility for the part of Hoornwerk adjacent to the river. The preservation of the inland part of the Hoornwerk will be the responsibility of the province. This division of responsibility might be made easier in the case of the Grebbedijk due to the clear spatial division of the two parts by the road. At the same time, it shows the importance of making agreements early on in the project as conflicts about responsibility were avoided in the Grebbedijk project.

The stakeholder engagement processes for each of the projects were different. This was because the project Grebbedijk was a more complex project compared to the project Stenendijk. Focussing on the stakeholder engagement process as a tool for exchanging information, there were different methods applied in both cases. The stakeholder engagement process of the project Stenendijk was initiated and led by the waterboard. This process involved several meetings with stakeholders and the landscape architects. This allowed landscape architects and the local stakeholders to provide suggestions for the enhancement of spatial quality. Contrary to the Stenendijk, the stakeholder engagement process of the project Grebbedijk was initiated by the waterboard but initially led by the landscape architects. This provides a cornerstone for the interests of spatial quality during the first discussions with stakeholders as landscape architects are able to steer discussions towards the topics of spatial quality and cultural heritage. Additionally, the stakeholder engagement process of the Grebbedijk included design ateliers, wherein the landscape architects were able to lead a creative process resulting in shared decision-making.

Spatial Quality teams

A spatial quality team has been applied as a nodality instrument for the project Stenendijk. This team provided advice to the project team during the orientation phase. Furthermore, the team assessed the plans for the preferred alternative. This instrument provided the waterboard with external expertise from other governmental agencies including the province, the municipality and the RCE. This multi-level collaboration of actors provided different perspectives on issues concerning spatial quality and cultural heritage. However, the spatial quality team was not involved in

the planning and realization phases of the project as was advised by the landscape architects in the spatial quality framework. This leaves the questions whether the project could have benefitted from the knowledge of the spatial quality team in later stages of the project. This is important as the preferred alternative can still be changed during the planning phase and impact the outcome for spatial quality and cultural heritage. Thus, the spatial quality team could have asserted a more controlling role by assessing the final plans and ensuring that ambitions for spatial quality and cultural heritage were realized.

Authority

The authority instruments that have been used for both cases include spatial quality frameworks and internal heritage policies of the Waterboard. The project Stenendijk differs from the project Grebbedijk, as it includes tender documents. However, these documents have not included requirements for spatial quality and cultural heritage. The spatial quality framework of both cases also differ as different policy instruments were applied for their creation. The application of the internal heritage policies, on the other hand, have been similar since they have been used to a limited extent in both cases.

Spatial quality framework

The spatial quality frameworks that have been created for both projects include the outcome of almost all efforts to include spatial quality and cultural heritage within the orientation phase. As such, the spatial quality framework provides guidance for the decision-making and design process that have led to the chosen alternatives for each case. This makes it an influential instrument for the integration of spatial quality and cultural heritage in both projects. The landscape architects of each project relied on different instruments that provided input for the spatial quality framework (See table 9). Furthermore, the content and application of the spatial quality frameworks differed per project which affected the opportunities for integrating cultural heritage in the projects.

	Project Stenendijk	Project Grebbedijk
Organization	Landscape architects	Landscape architects
	Cultural heritage advisor	-
Nodality	Stakeholder engagement	Public participation
	Experiential value research	Stakeholder engagement
	Q-team	-
Authority	Internal heritage policy	-
Treasure	-	-

Table 9: Applied policy instruments for the creation of the spatial quality frameworks in the projects Stenendijk and Grebbedijk.

Focussing on the instruments that were applied in the creation of the spatial quality framework by the landscape architects of both projects, it becomes clear that the landscape architects of the project Grebbedijk relied on less instruments than the landscape architects of the project Stenendijk. This suggests that a more holistic approach has been applied for the creation of the spatial quality framework of the project Stenendijk, compared to the framework of the project Grebbedijk.

Apart from the instruments that provided input for the spatial quality framework, there is also a difference in the content and application of the spatial quality frameworks themselves. The spatial quality framework of the project Stenendijk focusses on the cultural heritage object and describes this in great detail. In comparison, the framework of the project Grebbedijk is less focussed on the cultural heritage object. This can be explained by the fact that the project Grebbedijk concerns a larger project area than just the heritage object, and thus involves a broader set of ambitions. Nevertheless, both frameworks provide principles for cultural heritage that have been to be taken into account by the waterboards. These principles assist in translating the most important values of cultural heritage into concrete objectives for the project.

Internal heritage policy

The internal heritage policy of the waterboards provides an entrance point for integrating cultural heritage in both projects, and thus, forms an opportunity for integration of cultural heritage. However, these documents had a limited influence on the outcome of each project because they were not directly applied by the project teams.

A similarity between the internal heritage policies of both waterboards is that they included several ambitions and for cultural heritage. This highlights the willingness of the waterboards to take cultural heritage into account in flood risk management projects. However, apart from these ambitions and goals, the internal heritage policy of the waterboard V & V provides limited guidance on how to integrate cultural heritage in decision-making or design processes of flood risk management projects. In particular, no guidance is provided for dealing with the financial aspect of integration. Additionally, no guidance is provided to solve conflicts between cultural heritage and flood risk management. In contrast, the internal heritage policy of the waterboard DOD includes an elaborate description of best practice projects. These examples shows how co-benefits can be created through the integration of flood risk management and cultural heritage. This way, the examples provide inspiration for design processes in flood risk management projects. This shows that increased attention for the internal heritage policy could have benefitted the outcome of the projects. A more prominent role of the cultural heritage advisor at the start of the project could assist in this.

Tender documents

For the Stenendijk, a contractor has been selected by the waterboard to finalize the plan and implement the chosen alternative. This allowed the waterboard to benefit from the expertise of the contractors. Rather than providing criteria for the restoration up front, the waterboard decided to actively communicate with the contractor to manage expectations. The driving force behind this communication was the agreement between the waterboard and the contractors that the price of the project would be determined after the implementation of the project. Furthermore, the contractors were responsible for the requirement of heritage permits from the

municipality to enable the implementation of the finalized plan. Although no additional ambitions for spatial quality and cultural heritage were added to the finalized plan, interests for spatial quality were partly secured by these contractual agreements. However, the responsibility to secure these interests rested on the shoulders of the waterboard and the contractors. This responsibility could have been shared with more parties, as recommended by the landscape architects in the spatial quality framework. Specifically, a landscape architect could have been contracted to secure the interests for spatial quality and cultural heritage, and possibly improve the design for the sake of these interests. Furthermore, the spatial quality team could have been included in the planning phase for the same reasons. The non-application of these instruments can, therefore, be perceived as missed opportunities for the integration of cultural heritage in the project of the Stenendijk.

Treasure

The treasure instruments that have been applied in both cases include Co-funding and subsidies. In both cases, the restoration of cultural heritage objects has been co-financed by the waterboard and the HWBP. In contrast to the project Stenendijk, additional co-financing was provided by the province in the project Grebbedijk. The project Stenendijk, on the other hand, received a subsidy from the province for the restoration of cultural heritage. Similarly, a subsidy from the Heritage deal was received for the project Grebbedijk.

Funding & subsidies

Funding from the HWBP is solely meant for components of the project that increase flood safety, and not for integrating additional ambitions, such as, the enhancement of spatial quality and cultural heritage. This was perceived as a barrier to the integration of cultural heritage and flood risk management in both projects, as it led to difficult negotiations with the HWBP and stakeholders to obtain funding for the projects. In both cases, this resulted in the financial decoupling of heritage components that were non-functional for decreasing the flood risk. For the project Stenendijk, this distinction was not easily made which resulted in unclarity about the financial responsibilities of the waterboard and HWBP. To solve this issue, the waterboards had to find ways to co-fund the cultural heritage components together with other governmental agencies. For the Stenendijk, the co-funding was found after long deliberation with the HWBP wherein part of the object was deemed to function as part of the dike. This shows that integrating cultural heritage as functional part of flood risk measures can assist in creating funds to enhance cultural heritage. However, the case of the Stenendijk also showed that there also is reluctance to fund the cultural heritage components within the waterboard. For the project Grebbedijk, additional funding from other governmental agencies was acquired through the attainment of subsidies and co-financing. The subsidy for cultural heritage was perceived as the enabling factor for the creation of the integrative solution. Namely, because subsidy from other governmental agencies pushed the waterboard and the province of Utrecht to also provide funding for cultural heritage through co-financing.

Policy instrument mixes of the projects Stenendijk and Grebbedijk

The policy instrument mixes of the projects Stenendijk and Grebbedijk include various policy instruments. In comparison, the policy mixes are comprised of largely the same policy instruments. Moreover, these policy instruments have been used in a similar extent as the individual policy instruments of both cases influenced similar aspects and processes within each project. However, there are also differences between the application of policy instruments which show that each project is different. This entails that the waterboards of the projects Stenendijk and Grebbedijk have had different perspectives on how the policy instruments should be applied. Nevertheless, the policy instrument mixes enabled the integration of cultural heritage and flood risk management by creating integrative solutions in both cases.

Chapter 7 - Conclusion & Reflection

The aim of this study was to explore how policy instruments can enable the integration of cultural heritage management and flood safety in flood risk management projects. To achieve this aim, and answer the main research question, a qualitative research strategy has been adopted wherein a multiple-case study design was applied. This allowed for the comparison between the cases of the Stenendijk and Grebbedijk. The empirical data from these case studies has been gathered by adopting a multiple method approach in the form of semi-structured interviews and a policy document analysis. Within this concluding chapter, answers on the research questions will be provided. Subsequently, recommendations for policymakers in cultural heritage and flood risk management will be made. At last, this chapter will touch upon the applied theoretical framework and methodology which will assist in deriving suggestions for further research.

7.1 Answering the research questions

How are cultural heritage management and flood risk management related, what are key trends, and what are barriers and opportunities for integration?

Following the literature on cultural heritage management and flood risk management, it can be concluded that both domains are connected through their integration with the domain of spatial planning. In the last decades, both policy domains have witnessed increased integration with spatial planning which assists the integration of cultural heritage and flood risk management (Janssen et al., 2017; Ruiten & Hartmann, 2016). Within the domain of flood risk management, this has become evident through the spatial turn, which can be perceived as a paradigm shift in Dutch flood risk management. This shift has led to increased attention for the enhancement of spatial quality. As such, this led to increased integration of cultural heritage, as it is perceived as a component of spatial quality (Ruiten & Hatmann, 2016). Within the domain of cultural heritage management, the increased integration with spatial planning has taken shape by the development of new approaches to manage cultural heritage objects, structures, and their accompanied values. The traditional approach for preserving cultural heritage through isolation and protection of cultural heritage values is still applied today. However, the application of new approaches allow for preservation through development (Jansen et al., 2017). This is shown by the case studies of this research, as the Stenendijk involved the preservation and isolation of the stone wall by partly removing its function as a flood barrier. In the Grebbedijk project, the restoration of the Hoornwerk provides a solution for the flood risk management issue. As such, cultural heritage can be managed in a way that it is included in the development of flood risk management measures and assists in increasing flood risk safety. Drawing on the literature about the integration of cultural heritage management and flood risk management with the

domain of spatial planning, several barriers and opportunities have been identified for integrating cultural heritage and flood risk management (See table 10).

Barriers	Opportunities
Increased requirements of space for the development of flood risk management measures can lead to conflicts between objectives for flood risk management and cultural heritage	Cultural heritage can assist in fitting flood risk management measures in the local context through tailor-made solutions
A focus on preservation of cultural heritage limits possibilities for the design of flood risk management measures.	Approaches that allow for preservation of cultural heritage through development enable the inclusion of cultural heritage objectives in flood risk management projects.
	Incorporating cultural heritage in flood risk management projects can assist in increasing flood risk awareness.
	The presence of cultural heritage values can assist in creating increased public support for flood risk management projects.

Table 10: Barriers and opportunities for the integration of cultural heritage and flood risk management.

What are policy instruments and which policy instruments can help to integrate spatial quality and culture heritage values into flood risk management projects?

Policy instruments are the means or tools used by governments to reach their policy objectives, such as, the integration of cultural heritage (Hood, 1983). Policy instruments have been categorized for this study, using the NATO-typology by Hood (1983). This typology distinguishes policy instrument categories based on the resources on which they rely. These categories include organization, nodality, authority, and treasure. The NATO-typology has been operationalized for this study, by connecting insights from the literature to the policy instruments that have been identified from policy documents of the HWBP and the case studies. This has resulted in the conceptual framework that shows which policy instruments can be applied to integrate cultural heritage in flood risk management projects, and in which manner (See Table 1). After the operationalization of the NATO-typology, the conceptual

framework is used to compare the policy instrument mixes that have been applied in the case studies.

Which policy instrument mixes are applied in the cases of the Stenendijk and the Grebbedijk to integrate cultural heritage into the flood risk management projects?

The policy instrument mixes that are applied in both case studies include various policy instruments (See Table 8). As such, it has become apparent that the waterboards of both case studies strived to integrate cultural heritage in their flood risk management projects. Overall, the policy instrument mixes show similarities as they consist of similar instruments. However, the cases differ since the project Stenendijk involves additional instruments including a spatial quality team and tender documents. This difference can be explained by the different planning of both projects. The project Grebbedijk is currently in the planning phase and involves a longer time span compared to the project Stenendijk. This entails that both instruments will be applied in the project Grebbedijk at a later date.

Focussing on the organizational and authority instruments, it can also be concluded that their application has been similar. First, landscape architects were given the responsibility of securing the interests for spatial quality and cultural heritage. This was achieved by participating in decision-making processes and the creation of spatial quality frameworks. The latter formed a medium to translate abstract cultural heritage values into concrete design principles that were used to guide the design processes. This shows that landscape architects were able to initiate creative design processes and act as boundary spanners, as suggested by Van den Brink (2016). Second, the application of internal expertise of the waterboard was limited as the advisors on cultural heritage were given limited opportunity to influence the project. This resonates with the findings of Bond et al. (2014), which states that the involvement of cultural heritage advisors is often overdue, and they are only able to assert limited influence. Similarly, the internal heritage policy of the waterboards also had limited influence on the outcome of both projects. These similarities in the use of policy instruments in both cases show that the waterboards relied external expertise to integrate cultural heritage in the design of the integrative solutions, rather than internal expertise. This contradicts the research of Egberts & Renes (2020) wherein it is stated that the internal cultural heritage advisors of the waterboards primarily acts as link between cultural heritage and flood risk management projects.

The nodality and treasure instruments that were applied in both cases are also similar. The waterboards acted as a node between stakeholders and local citizens by applying nodality instruments. First, the waterboards were able to collect and distribute historical information and stories about the cultural heritage objects through public participation. As argued by Edelenbos et al. (2016) and Projectbureau Belvedere (2010), this assisted in increasing public support for the project and raised

awareness for flood risk safety. However, the collected information was not applied to create integrate cultural heritage in the flood risk management measures. A difference between the applied methods for public participation is that an experiential value research has been conducted for the Stenendijk. This provided a valuable addition to the public participation process, as it allowed for the identification of cultural heritage values as perceived by the local citizens. Second, the waterboards initiated stakeholder engagement processes that allowed for the identification of interests and ambitions for cultural heritage. Moreover, it provided additional expertise as cultural heritage experts from multiple governmental levels were included in both projects. This expertise was also provided by the spatial quality team that was involved in the project Stenendijk. However, the involvement of the spatial quality team differed from the stakeholder engagement process as it included the assessment of plans.

The case studies also show similarities between the applied treasure instruments. These instruments included co-financing and subsidies for both projects. First, co-financing was created between the waterboards and the HWBP. To get to a co-financing agreement with the HWBP, the cultural heritage objects were financially decoupled from the flood barriers. As such, the restoration of the cultural heritage objects was separately financed from the flood risk management measures. This is a direct result of the financial requirement from the HWBP, which involves that the dike reinforcement programme only finances components of the projects that assist in the decrease of flood risk. This was perceived as a barrier to the integration of cultural heritage in both projects. For the project Stenendijk it led to conflicts about financial responsibility for preserving cultural heritage. For the project Grebbedijk, this led to the involvement of the province of Utrecht which provided the additional required funds. This funding is used to restore the heritage components that were not connected to the flood risk issue. As such, the case studies show that it can be beneficial to connect cultural heritage components to flood risk management issues, as it may lead co-financing agreements wherein expenses are shared by multiple stakeholders. Second, the waterboards were able to apply for subsidies in both cases. For the project Stenendijk, the Waterboard used solely internal expertise for this application. In contrast, the application for the subsidy in the project Grebbedijk was done in cooperation with a heritage expert that has been included in the public participation process. This shows an additional way in which the participation can also benefit the flood risk management projects as compared to benefits that have been outlined by Edelenbos et al., 2016.

How can policy instrument mixes enable the integration of cultural heritage management in flood risk management projects in the Netherlands, and what lessons can be learned from the cases of the Stenendijk and the Grebbedijk?

This study has shown that the application of various policy instruments has led to the creation of integrative solutions in the cases of the Stenendijk and Grebbedijk. Applying a variety of policy instruments assisted the integration of cultural heritage in the flood risk management project of the Stenendijk and Grebbedijk. This was due to the fact that different policy instruments affect different aspects and processes within the projects. Additionally, the case studies show policy instruments within the mixes can affect each other. For example, the landscape architects were involved in the creation of the spatial quality framework that was used as input for the decision-making process. These findings show that integration of cultural heritage in the case studies is not achieved by merely a single policy instrument. Instead, it shows that a mix of policy instruments enabled the integration of cultural heritage in different processes and aspects of the flood risk management projects. The comparison of the case studies has also provided several lessons that can be learned from the application of policy instruments. These lessons have been summarised in Table 11.

<p>Organization</p> <ul style="list-style-type: none"> -Non-involvement of landscape architects during planning and implementation limits the possibilities for integration of cultural heritage in later phases of flood risk management projects. -The involvement of independent landscape architects and landscape architects that are employed by engineering companies both assist in integrating cultural heritage and flood risk management in decision-making and design processes where they act as boundary spanners. -The involvement of multiple landscape architect bureaus provides a differentiated perspective on how cultural heritage could be integrated in flood risk management. -The involvement of landscape architects in the planning and implementation of flood risk management may result in the inclusion of additional objectives for integration of cultural heritage. -The limited role of cultural heritage advisors in flood risk management projects limits the internal expertise of waterboards to include cultural heritage as an ambition. 	<p>Nodality</p> <ul style="list-style-type: none"> -Active public participation and stakeholder engagement can lead to the inclusion of cultural heritage ambitions in flood risk management projects. -Cooperative public participation can assist in the attainment of subsidies for the integration of cultural heritage in flood risk management projects. -Conducting an experiential value research assists in taking cultural heritage values into account and can provide input for decision-making and design processes. -Involving landscape architects in the stakeholder engagement process provide an entrance point for integrating cultural heritage in flood risk management projects. -Making agreements about the division of responsibility for cultural heritage components prevents conflicts between stakeholders and assists in creating shared consensus. -Involving a spatial quality team at the start of a project assists in securing the interests for spatial quality early on in flood risk management projects.
<p>Authority</p> <ul style="list-style-type: none"> -Spatial quality frameworks assist the inventory of heritage components in flood risk management projects and allows for the concrete translation of heritage values into guiding principles for decision-making and design processes. -The gap between planning and implementation prevents the implementation of recommendations set out in guiding policy documents created in the orientation phase. -The limited influence of internal heritage policies in flood risk management projects limits the application of internal expertise of the Waterboards. 	<p>Treasure</p> <ul style="list-style-type: none"> -The functional application of cultural heritage objects and structures as flood risk management measures allows for increased funding for the restoration of these objects. -Subsidies and co-financing from other governmental agencies can stimulate waterboards to fund the restoration of cultural heritage objects. -A sectoral approach towards financing cultural heritage components in flood risk management projects result into conflicts between stakeholders concerning the responsibility of funding.

Table 11: Lessons learned from the Stenendijk and Grebbedijk projects.

7.2 Recommendations for flood risk management practitioners

Based on the lessons learned from the case studies Stenendijk and Grebbedijk, multiple recommendations can be made concerning the application of policy instruments. These recommendations are aimed at waterboards that face the issue of integrating cultural heritage in flood risk management projects of programmes of the HWBP. It is not possible to make generalizations based on the two case studies, as each flood risk management project is unique, area specific and involves different complexities. However, it is possible for flood risk management practitioners to consider the application of policy instruments that are identified in this study. The following recommendations can provide insights for the selection of policy instrument and allow flood risk management practitioners to learn from the case studies of the Stenendijk and Grebbedijk:

- Cultural heritage advisor should gain a more prominent role in decision-making processes.

This would extend the role of the cultural heritage advisor by becoming an advisor on spatial quality, as mentioned by Egberts & Renes (2020), which allows for the improved application of internal expertise of the waterboard. Within this role, the cultural heritage advisors could advise the project team. As such, they can ensure that plans and recommendations for spatial quality, that are made during the start of the project, are followed up on during later stages of the project. As such, the cultural heritage advisor can assist in bridging the gap between the planning and implementation of flood risk management projects. Additionally, cultural heritage advisors can promote the ambitions of the internal policy on cultural heritage of the waterboards.

- To include landscape architects early on in the process, as well as throughout the later phases of flood risk management projects.

Early involvement of landscape architects can provide an entrance point for cultural heritage interests to be taken into account. Continues involvement of landscape architects throughout the project allows for the identification of additional ambitions for cultural heritage in later stages of the project. Moreover, it assists in bridging the gap between the planning and implementation of flood risk management projects.

- To involve different landscape architect bureaus in the subsequent phases of the project.

The involvement of multiple landscape architect bureaus allows for a differentiated perspective on how cultural heritage could be integrated in flood risk management. This may enable the identification and inclusion of additional ambitions for cultural heritage.

- To create an inventory of the cultural heritage values in the public participation process

An inventory of cultural heritage values assists in identifying interests and ambitions for cultural heritage. Moreover, it allows for the inclusion of public opinions in the design and decision-making processes, which may increase public support for the project and create flood risk awareness (Edelenbos et al., 2016). The inventory of cultural heritage values could be created by conducting an experiential value research.

- Waterboards should strive to incorporate cultural heritage objects as functional components in their flood risk management measures, whenever the nature of the object allows for it.

The incorporation of cultural heritage objects in flood risk management measures can initiate the restoration of these objects, which allows for their preservation. This can also lead to agreements for co-financing, wherein expenses are shared between stakeholders. As this can involve the financial decoupling of cultural heritage components, it is important to make agreements on financial responsibilities early on in the project. This helps to prevent conflicts between stakeholders and assists in creating a shared consensus.

7.3 Theoretical and methodological reflection

Applying the NATO-typology as part of the theoretical framework for this research had multiple benefits, but also had its limitations for analysing the integration of cultural heritage in flood risk management. The first and foremost, benefit of the NATO-typology is that it allows for detailed analysis of the policy instruments applied in flood risk management to integrate cultural heritage. Second, the broadness of the categories organization, nodality, authority, and treasure enabled the inclusion of a broad array of policy instruments to be discussed in this research. Third, the four categories assisted in structuring the format of this study in a logical manner. Apart from these benefits, the NATO-typology also has its limitations. First, the NATO-typology has been applied from the perspective of waterboards for this study. This provided a limited view of the network relations between the other governmental agencies, such as municipalities and provinces, as well as the instruments that these actors apply to enhance spatial quality and cultural heritage. Second, the instruments that have been described in this study primarily include those that can be affected by the waterboards, as this would enable the assessment of the waterboards capabilities for integration. In doing so, various contextual factors, such as land ownership, could not be taken into account even though they affected the project. Nevertheless, it can be concluded that these limitations do not outweigh the benefits of applying the NATO-approach for this research.

For this study, a multiple method approach has been applied to collect secondary and primary data. First, the policy documents analysis focussed on case specific documents. This limited scope enabled a comprehensive analysis of documents that were relevant to the case study research. Second, the semi-structured interviews were conducted without any issues. The identification of interviewees started out during the discussions with the cultural heritage advisor of the waterboard DOD concerning the selection of the case studies. These discussions provided a starting point for

identifying interviewees for the case of the Stenendijk. Selecting good practice examples also assisted in finding interviewees that were willing to assist in this study, as they were eager to elaborate on their role in the projects. The interviewees primarily consisted of members of the project teams, cultural heritage advisors of the waterboard and landscape architects that were involved in the projects. Other interviewees that have been contacted include several representatives of the province of Utrecht and Utrechts landschap. Although in vain, these attempts were made to create a more holistic perspective on the role of the waterboard and the policy instruments that were applied. During the semi-structured interviews, the benefit of the multiple case study approach presented itself. Topics of interest that were introduced in one case provided new starting points for discussion in the other. This assisted in finding differences and similarities between the case studies. The analysis of the data was also performed without any issues. Using the software Atlas.ti was a process of learning by doing but it proved to be a suitable method of analysing the data. Overall, the selected methods for this research enabled interesting discussions with people that share similar visions for cultural heritage management and flood risk management, making it an enjoyable experience.

7.4 Contributions to planning theory

The integration of cultural heritage in flood risk management is a governance challenge that has received little attention in academic literature (Fatoric & Biesbroek, 2020). This study has shed light upon this governance challenge, by elaborating on how this integration is achieved in flood risk management projects. The operationalization of the NATO-typology has assisted in explaining how policy instrument mixes can enable the integration of cultural heritage in these projects (See table 1). Thus, the identified policy instrument mixes provide insights into how climate adaptation is achieved through the application of policy instruments, as called for by Mees et al. (2014). To conclude, the primary contribution to planning theory of this research has been the identification of policy instrument mixes that can enable the integration of cultural heritage in flood risk management projects.

7.5 Suggestions for further research

In this study, the two policy instrument mixes of the case studies compared by using the conceptual framework. Further research could focus on whether similar policy instrument mixes are applied in similar flood risk management projects. This would provide a more holistic perspective on which instruments can be applied to integrate cultural heritage in flood risk management projects. Moreover, it would enable a comparison between the applied instruments which can assist in making generalizations. This could allow for the assessment of the effectiveness of these policy instruments and policy instrument mixes (Hood, 1983).

Another suggestion for further research involves the findings on the role of the landscape architects in securing interests for spatial quality in flood risk management projects. Currently, it is presumed that landscape architects under employment of an

engineering company are unable to secure the interests for spatial quality. Moreover, the role of engineering companies in enhancing spatial quality is not taken into account in the literature on policy instruments (Verwij et al., 2010; Van den Brink et al., 2019). However, the results of this research suggest that it is possible for both the engineering companies and their landscape architects to enhance spatial quality and cultural heritage. Further research is required to provide clarity on this discussion.

7.6 Building with culture

This study introduces the concept of ‘building with culture’ as an approach in flood risk management. Similar to the concept of ‘building with nature’, which is an approach that is already used in the Netherlands, building with culture can create additional benefits within flood risk management projects (De vriend et al., 2014). First, building with culture can assist in adding value by enhancing the spatial qualities of an area. This has been achieved in the projects Stenendijk and Grebbedijk by enhancing the visibility of the cultural heritage objects. Second, building with culture can assist in fitting flood risk management measures into the local context which can also be achieved by the building with nature approach (De vriend et al., 2014). As such, it can enhance local support for the project. Third, building with culture can create increased attention for water heritage and draw attention to the rich cultural history of Dutch water management. This can help to create flood risk awareness by linking the past to current issues in flood risk management. Finally, building with culture can enable the preservation and restoration of cultural heritage.

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Appendix I – Interview Guide

Introductie

1. Kunt u iets vertellen over uw achtergrond en functie binnen uw organisatie?
2. Vanaf wanneer is erfgoed een thema geworden binnen het project?

Instrumenten

3. Welke organisaties tonen initiatief voor erfgoed en hoe waren de verantwoordelijkheden verdeeld? – Wat is de rol van het waterschap geweest in het borgen van erfgoed als belang binnen het project?
4. Hoe is de beleidsnota van het waterschap gebruikt voor het project?
5. Hoe is de lokale omgeving betrokken bij het project en op welke manier hebben zij bijgedragen?
6. Wat is de rol geweest van de landschapsarchitect?
7. Op welke manier heeft het ruimtelijke kwaliteitskader bijgedragen aan het project?
8. Wat is de rol geweest van het kwaliteitsteam en op welke manier heeft dit team bijgedragen aan het borgen van erfgoed als belang in het project?
9. Hoe is de aanvraag van subsidies verlopen?
10. Hoe zijn jullie met andere stakeholders tot een overeenkomst gekomen over cofinanciering van het project?
11. Op welke manier is de borging van ruimtelijke kwaliteit het belang voor cultureel erfgoed geborgd in de aanbesteding?

Barrières en kansen

12. Wat zijn de belangrijkste struikelblokken geweest voor het integreren van erfgoed in de gekozen oplossing?
13. Hoe zou erfgoed beter zou kunnen worden meegenomen in het project?

Afsluiting

14. Zijn er dingen die ik niet heb gevraagd tijdens het interview maar wel van waarde kunnen zijn voor mijn onderzoek?

Appendix II – Form of consent

Hartelijk dank voor uw deelname aan een onderzoek naar de borging van cultureel erfgoed in dijkversterkingsprojecten van het HWBP dat onderdeel is van mijn afstudeerscriptie voor de master Environmental Infrastructure Planning, binnen de faculteit ruimtelijke wetenschappen aan de Rijksuniversiteit Groningen. Het doel van dit onderzoek is om inzicht te verkrijgen in hoe cultureel erfgoed wordt meegenomen in dijkversterkingsprojecten en de welke rol beleidsinstrumenten hierin spelen. Om dit doel te bewerkstelligen zal er worden gekeken naar twee casussen: de Stenendijk in Hasselt en het Hoornwerk dat onderdeel uitmaakt van de Grebbedijk bij Wageningen. Voorafgaand aan het interview wil ik u op de hoogte stellen van het volgende:

Vrijwillige deelname

Uw deelname aan dit onderzoek is vrijwillig. Dit houdt in dat u te allen tijde, en zonder verantwoording, kan stoppen met deelnemen aan het interview en geen vragen hoeft te beantwoorden die u niet wilt beantwoorden.

Data verzameling en vertrouwelijkheid

Voor de verzameling van de data zal gebruik worden gemaakt van opname apparatuur waarbij een audio-opname van het interview wordt vastgelegd. Doormiddel van deze opname kan het interview naderhand worden getranscribeerd en geanalyseerd door de student. De data wordt uitsluitend gebruikt voor dit onderzoek en niet voor andere doeleinden. Om uw privacy te garanderen zal de audio-opname worden opgeslagen worden op een externe harde schijf totdat het onderzoek is afgerond. Daarna zal de audio-opname worden verwijderd.

Persoonlijke gegevens

Gedurende het onderzoek zullen uw persoonlijke gegevens en vertrouwelijke informatie niet worden overhandigd aan derden. De verkregen data uit het interview zal zichtbaar in het onderzoek naar voren komen in bijvoorbeeld de vorm van citaten. Bij dergelijke citaten zal een pseudoniem worden gebruikt om uw anonimiteit te beschermen. Dit pseudoniem, die door de student bedacht, is gebaseerd op uw functie en de organisatie waarbinnen u werkzaam bent.

Contact

Als u besluit uw deelname aan het onderzoek voortijdig of naderhand te willen beëindigen kunt u contact opnemen via het onderstaande email-adres. Tevens kunt uw contact opnemen voor opmerkingen, klachten of vragen over het onderzoek.

r.m.nijholt.1@student.rug.nl

Bevestiging deelname aan het onderzoek

Bij het tekenen van dit formulier bevestigt u het bovenstaande te hebben begrepen, voldoende geïnformeerd bent over het onderzoek en dat u akkoord gaat met het bovenstaande.

Naam deelnemer:	Naam onderzoeker
Handtekening:	Handtekening:
Datum:	Datum:

Appendix III – Code book

Code categories	Code sub-categories	Inductive/deductive
Heritage approach	Sector Factor Vector	Deductive Deductive Deductive
Spatial quality	Experiential Utility Future	Deductive Deductive Deductive
Organization	Landscape architects Cultural heritage advisors	Deductive Deductive
Nodality	Stakeholder engagement Public participation Spatial quality teams Experiential research	Deductive Deductive Deductive Inductive
Authority	Policy for cultural heritage Spatial quality framework Tender documents	Deductive Deductive Deductive
Treasure	Co-financing Subsidies	Deductive Deductive
Integration	Barriers Opportunities	Deductive Deductive
Other	Conflicting interests Project planning	Deductive Inductive