

Nature-Inclusive Recreation in Dutch Floodplains

Navigating opportunities and constraints of revised river policies in 2025



Figure 1. *Floodplain area in Maurik*
Note. From Dijkwacht Buren, 2024a.

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AI statement

The content of this research proposal is generated by the author. AI tools were used to improve the clarity of writing by checking spelling, grammar, and synonyms:

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Abstract

Recent findings on the pace of climate change highlight heavier rainfalls, prolonged droughts, and increased risk of flooding events. At the same time, socio-economic growth has led to an increased demand for recreation. Although these developments may seem conflicting, they can be harmonised through holistic planning that balances nature restoration, societal needs, and economic development within floodplain recreation. This research used various methods to examine what is needed to ensure recreational activities align with Dutch floodplain policies and societal needs. Since the Netherlands recently adopted new river and floodplain policies to address climate change challenges, these were first analysed. To identify potential recreation initiatives fitting within the revised policies, Commonland's Four Returns framework was used. Four types of recreation were found: (1) small-scale harbours, (2) picking gardens, (3) visitor/information centres, and (4) nature-based holiday accommodations. Next, eleven interviews were conducted with experts from these four nature-inclusive recreation businesses. The interviews were supported by participatory observations to capture a sense of place and collect visual data. Finally, the floodplains in Maurik were examined as a case study. Six interviews with government officials, entrepreneurs, and local residents, as well as a policy analysis of the municipality's environmental vision, were conducted. The findings propose to define 'nature-inclusive recreation' as "small-scale, accessible, and landscape-fitting initiatives that holistically integrate inspirational, social, natural, and financial aspects to support future-proof development". The four examined recreation types exemplify this definition and capture the essence of what is needed to address climate change and evolving societal recreation demands.

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1. Introduction

Floodplains are areas alongside rivers that provide the space* for water to flood during periods of high water levels (see Figure 2). They have been formed over a long period of time by repeated flooding events that left behind layers of sand and clay (Tschikof et al., 2024). Due to their flat topography and easy accessibility, floodplains have become closely connected to human life (Jakubínský et al., 2021; Tschikof et al., 2024). These areas are typically used for agriculture, marinas, and recreation (Rijkswaterstaat, 2025).



Figure 2. Map indicating the floodplain area near the Nederrijn River

The Netherlands is internationally recognised for its advanced water management strategies, due to its long history of constructing dams, bridges, and dikes to protect against the water (Ministerie van Buitenlandse Zaken, 2023; Rijkswaterstaat, 2019). The focus was on having control over the water until major flooding events happened in the 1990s (Havinga, 2020). At the time, heavy rainfall and meltwater caused a significant rise in water levels. This resulted in immense pressure on the dikes and forced thousands of people to evacuate. In response, the Dutch government recognised the urgency of increasing the discharge capacity of the rivers (Havinga, 2020). An increase in discharge capacity means that, during high water levels, rivers must be able to use their floodplains to safely discharge excess water (Rijkswaterstaat, 2025). This new approach resulted in a new policy program called *Ruimte voor de Rivier* (RvdR [Room for the River]), which was officially launched in 2006. Measures such as the construction of side channels to widen riverbeds were

*The terms 'space' and 'room' both refer to the area rivers need to flow naturally. The usage of the terms varies throughout the research depending on the context. Specifically, 'space' is applied in a spatial context, while 'room' is used in a political context.

implemented at various locations along the IJssel, Waal, Nederrijn, and Lek (Rijkswaterstaat, 2025). Simultaneously, the *Handreiking Beleidslijnen voor Grote Rivieren* (HBGR [Guidelines for Major Rivers]) policy was introduced in 2006. These guidelines were established to offer a framework that limits spatial developments within the riverbed. These new river policies and the approach of returning space to the rivers marked a shift in Dutch water management that continues to be widely embraced today.

1.1 Problem statement

Recent insights on the pace of climate change highlight how heavier rainfalls and prolonged droughts are expected, which increases the risk of flooding events (Tomscha et al., 2017). These insights have led to a tightening of the policies and laws for floodplain land use. In 2025, a revision of the HBGR 2019 was launched (HGBR-19). This revision, called *Beleidsregels Grote Rivieren 2025* (BGR-25 [Guidelines Major Rivers]), limits the possibilities of activities within floodplains that are not directly related to the river. At the same time, the policy program *Ruimte voor de Rivier 2.0* (RvdR2.0 [Room for the River]) was introduced in February 2025. This new program envisions a river system that has enough space to naturally flow (Rijkswaterstaat, 2025). These policy developments particularly affect the recreation sector, which plays an increasingly important role in Dutch society. The demand for recreational activities has continued to grow, driven by changing socio-economic conditions and an increasing need for natural spaces to unwind (Guo et al., 2010). The Dutch Central Bureau for Statistics (CBS) illustrated how this demand in the Netherlands increased by twelve per cent compared to last year (Centraal Bureau voor de Statistiek, 2025a). The growing interest in recreation has also resulted in more people staying at accommodation facilities for their holidays (Centraal Bureau voor de Statistiek, 2025b). An example of these trends is observed in Maurik, a small village in the municipality of Buren, located along the Nederrijn River. Entrepreneurs have made use of Maurik's attractive natural landscapes by developing large-scale holiday parks within the floodplains (Dijkwacht Buren, 2024b). However, the local Non-Governmental Organisation (NGO) Dijkwacht Buren opposes these large-scale holiday parks because they do not fit the landscape or infrastructure and pose a threat to a protected Natura 2000 area (Omroep Gelderland, 2021). The NGO, which was founded by residents of Buren, is concerned about traffic safety, pollution, and that mainly foreign investors will benefit. Residents fear that these parks are temporary trends that will only harm the environment and local community (Omroep Gelderland, 2021).

Reflecting this growing debate about recreational use of natural areas, the ANWB (*Algemene Nederlandse Wielrijdersbond*) and the WNF (*Wereld Natuur Fonds*) published a

key report towards the end of 2024. The report is called '*Recreatie in het Rivierengebied*' (Recreation in the River Region) and emphasises the importance of finding ways to reduce pressure on nature while still enabling people to enjoy recreational activities (ANWB, 2024). For instance, Peter Leonhart from the ANWB argues that opportunities in floodplains are currently being missed due to the absence of an integrated management approach that combines recreation, water safety, and nature conservation (Van Der Poel, 2024). Leonhart stresses the importance of "[...] *making better use of river areas with forms of recreation that have minimal impact on nature, such as walking, cycling, or canoeing*" (in Van Der Poel, 2024). River regions such as the Nederrijn-Lek have the potential to simultaneously enhance recreation and nature restoration, thereby improving the quality of life for both current and future generations (ANWB, 2024). The report illustrates some inspiring examples of successful small-scale, nature-based recreation initiatives. For instance, the Meandering Meuse project demonstrates how dike reinforcement, a compact information centre, and ferry days can all be integrated into the floodplain areas (ANWB, 2024). Another example is found in the floodplains of the Gelderse Poort, where economic development has taken place through bike rentals and small-scale hospitality services (ANWB, 2024). The report by the ANWB and WNF offers valuable insights and guidance on including social, ecological, and economic aspects into sustainable recreation initiatives.

The destruction of natural ecosystems poses a significant risk to human well-being, the global economy, international trade, and society (Ferwerda, 2015; Tomscha et al., 2017). Impacts are even worsened over time due to climate change (Tomscha et al., 2017). Solving this ecological crisis would demand a world wherein the global economy operates within the planetary boundaries. Nowadays, the focus is mainly on maximising economic profits (Ferwerda, 2015). This focus leads to ecosystem degradation and results in four key losses that consist of biodiversity reductions, losing a meaningful connection between humans and nature, declining social networks, and economic reductions (Ferwerda, 2015). To be able to counteract these losses, ecosystem projects should aim to generate positive returns. An organisation that developed a new approach for ecosystem projects to balance nature conservation and human activities is Commonland (Commonland, 2024a; Ferwerda, 2015). This international NGO is focussed on landscape restoration and developed a framework to guide ecosystem projects. In collaboration with local communities, businesses, and governments, Commonland seeks to restore degraded ecosystems (Ferwerda, 2015). The emphasis lies on adopting a holistic approach, where the success of any initiative depends on considering multiple interconnected dimensions. To achieve long-term success, aspects of nature, society, and the economy must all be integrated into the initiative (Commonland, 2024a). As stated by the CEO of Commonland: "*When ecology drives the economy,*

everyone thrives” (Commonland, 2024b). This framework is crucial when exploring the possibilities of sustainable recreational initiatives for Dutch floodplains.

1.2 Research questions

The aim of this research is to develop recommendations for sustainable recreation initiatives that balance economic, ecological, and societal interests. The goal is to formulate evidence-based guidelines for nature-inclusive floodplain recreation that support future-proof decision-making. Following this objective, the central question guiding this thesis is: *What guidelines are needed to ensure that nature-inclusive recreation in Dutch floodplains aligns with climate-adaptive river policies and societal needs?*

To be able to answer this main research question, the following sub-questions will be answered:

1. *How do the revised Dutch river policies RvdR2.0, HBGR-19, and BGR-25 affect the potential use of floodplains?*
2. *What insights emerge from existing recreation businesses using the Four Returns framework to evaluate the success of ecosystem projects?*
3. *What is practically feasible in the case of Maurik, where floodplain areas are for sale?*
4. *To what extent is it possible to define nature-inclusive recreation?*

2. Literature Review

2.1 Nature-inclusive recreation

Research illustrates how floodplains provide many important services for both nature and people, such as clean water, flood control, support for biodiversity, and recreational opportunities (Thiele et al., 2019). The increasing demand for these ecosystem services (ES) has caused worldwide changes to river systems (Tschikof et al., 2024). This has put pressure on the quantity and quality of the floodplain’s ES, creating risks for both nature and society (Thiele et al., 2019). Research demonstrates that as national economies grow, the demand for cultural ecosystem services (CES), such as cultural education and recreation for unwinding purposes or simply enjoying nature, increases (Guo et al., 2010). Those findings reflect a societal shift towards valuing the cultural and recreational dimensions of nature. Recognising these processes is essential in understanding how ecosystem degradation can directly affect human well-being (Guo et al., 2010; Hernández-Morcillo et al., 2013). Research by Tew et al. (2019) further highlights the positive impacts of nature-based experiences on both physical and mental health, as well as their role in fostering pro-environmental behaviour by reconnecting individuals with natural environments. These

outcomes are part of what is defined as CES: “*the non-material benefits people obtain from ecosystems through spiritual enrichment, cognitive development, reflection, recreation and aesthetic experiences*” (Reid, in Hernández-Morcillo et al., 2013). Based on this definition, seven categories of CES have been identified: spirituality and religion, recreation, natural aesthetics, sense of place, inspiration, cultural heritage, and education (Reid, in Hernández-Morcillo et al., 2013). These services capture the diverse ways in which people engage with and derive value from ecosystems. Research by Ferwerda (2015) on Commonland’s Four Returns framework emphasizes the importance of including all four capitals in ecosystem initiatives, as the success of such projects depends on their integration. These capitals consist of inspirational, social, natural, and financial aspects (Commonland, 2024a; Ferwerda, 2015). Examples are a sense of belonging (inspirational return), community engagement (social return), restored nature (natural return), and financial viability (financial return). The holistic integration of these returns into ecosystems is not only crucial for the success of nature rehabilitation but is also intrinsically linked to human well-being (Commonland, 2024b; Ferwerda, 2015; Hernández-Morcillo et al., 2013).

Commonland’s research illustrates how recreational and educational developments support social cohesion and cultural heritage, which are crucial for sustainable societies (Ferwerda, 2015). Research further argues how embedding CES in guidelines will promote resilient innovations by addressing both ecological sustainability and the cultural dimensions of human well-being (Guerry et al., 2015). This can be done by including nature-related aspects into policy making, education, and recreation (Bremán et al., 2022; Guerry et al., 2015; Runhaar, 2017). Nature-inclusive planning means that the local conditions are taken into consideration and the land-use activities are matched with what the soil and water systems can handle (Bremán et al., 2022). Although ‘nature-inclusive’ is not a commonly used term in English or academic literature, it is receiving growing attention in emerging Dutch policy discussions. Research indicates that the concept is appealing because it captures the heart of discussions as it is about moving towards more sustainability (Runhaar, 2017). Moreover, research illustrates how nature-inclusive agriculture, for example, is “*central to creating more sustainable agricultural landscapes that align economic, ecological, and societal values*” (Runhaar, 2017). As the term has not been strictly defined yet for recreation, it opens the dialogue and encourages the development of more expertise on nature-inclusive recreational activities. Furthermore, research illustrates how CES, and by extension nature-inclusive practices, are often overlooked in land-use management decisions (Tew et al., 2019; Thiele et al., 2019). This is because CES are seen as more subjective, complex, and closely tied to specific locations (Tew et al., 2019). At the same

time, research stresses that if humanity wants to achieve its future sustainability targets, including CES in decision-making processes will be crucial (Guerry et al., 2015).

2.2 Towards sustainable river system management

Research demonstrates how governments around the world have implemented integrated river management projects at both local and regional levels (Fliervoet et al., 2017). These projects aim to combine different functions, such as flood protection, nature restoration, and potentially conflicting uses of land such as recreation and agriculture. Fliervoet et al. (2017) further argue that local knowledge and the delegation of responsibilities to local and private actors should be better incorporated in order to enable integrative floodplain initiatives. Building on these findings, Peters et al. (2021) demonstrate how river landscape restoration benefits from design strategies that build on the natural characteristics of rivers, also described as the “DNA of a river”. This strategy, known as the ‘Smart Rivers approach’, combines strong functions, such as flood protection, with weaker functions, such as ecosystem restoration (Peters et al., 2021). Complementing these insights, research by Kok et al. (2025) examined the trade-offs between ecosystem services, such as flood protection or aesthetic qualities, under different river management strategies for the Rhine river distributaries. Their findings illustrate how multifunctional strategies are more effective at achieving long-term sustainability and resilience than mono-functional, strictly regulated approaches. Additionally, they argue that integrated approaches offer a more comprehensive basis for decision-making by looking at a variety of aspects, such as climate resilience and biodiversity (Kok et al., 2025).

This shift towards more inclusive and adapted river management is also reflected in Dutch perspectives (Bogdan et al., 2020). Due to limited space, Dutch rivers are required to serve multiple functions simultaneously. This includes the combination of ecological, recreational, and agricultural uses within river systems (Bogdan et al., 2020). Similar trends are seen in Germany. After years of floodplain degradation, a shift occurred towards recognising the essential ES that floodplains provide for both society and nature (Heyden & Natho, 2022). Their study on nature conservation assessed whether current floodplain management strategies in Germany effectively restore and protect valuable areas (Heyden & Natho, 2022). The results demonstrate that while Germany has made progress in giving rivers more space, the implementation of more enhanced nature restoration measures remains slow. The study underscores the need for stricter policy enforcements and more integrated floodplain management approaches to ensure future-proof success (Heyden & Natho, 2022).

This emphasis on future-oriented governance is also visible in recent political developments in the Netherlands (Ministerie van Infrastructuur en Waterstaat, 2025a; Rijkswaterstaat, 2025). The revised policies RvdR2.0 and BGR-25 introduce a new approach to river management by focussing more on prioritizing natural river dynamics and the restoration of natural areas. Recreational activities that do not harm the environment are encouraged within these policies (Ministerie van Infrastructuur en Waterstaat, 2025a; Rijkswaterstaat, 2025). While the term ‘nature-inclusive recreation’ is frequently mentioned in the revised 2025 policies, there remains a significant gap in academic literature regarding its clear definition and practical application (Ministerie van Infrastructuur en Waterstaat, 2025a; Rijkswaterstaat, 2025; Runhaar, 2017). This gap is partly due to the recent introduction of this term in the revised policies, highlighting the emerging importance of nature-inclusive recreation. Therefore, it is essential to enrich the existing literature by exploring how nature-inclusive recreation is interpreted and could be spatially designed in Dutch floodplains.

3. Methods

3.1 Research design

This research aims to answer the overarching question: *To what extent is it possible to establish guidelines for nature-inclusive recreation in Dutch floodplains?* To answer this question, this study follows a qualitative research strategy. Hence, a policy analysis, expert interviews, and fieldwork with participatory observations have been conducted. Additionally, the floodplains in Maurik are used as a case study to examine practical feasibility (see Figure 3). To understand all the findings, different lenses are needed from economic, societal, and environmental perspectives. Through the integration of these different dimensions, as promoted by the Four Returns framework, this research embraces an interdisciplinary approach (Ferwerda, 2015).

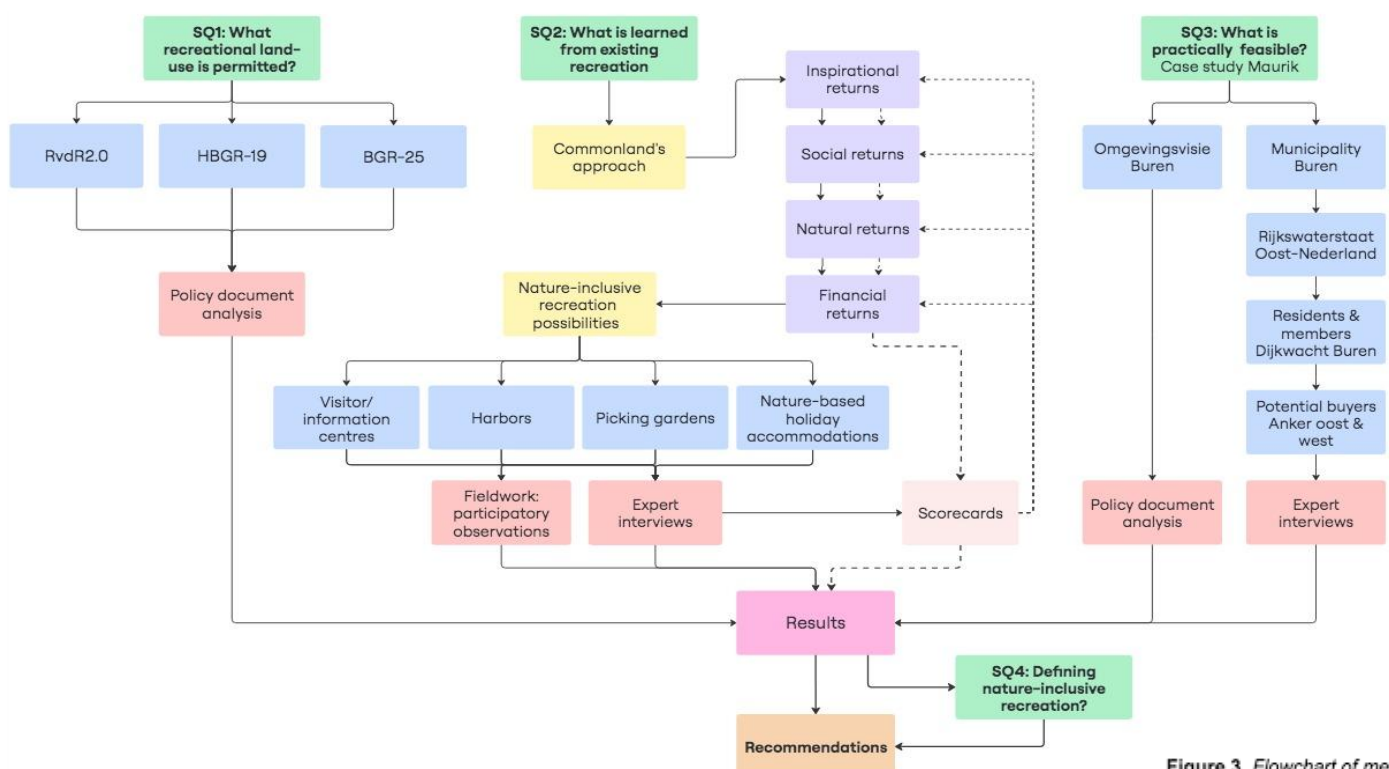


Figure 3. Flowchart of methodology

3.2 Policy document analysis

To qualitatively and systematically examine the documents, a policy analysis was conducted following the READ approach (Dalglish et al., 2020). The READ policy analysis provides a systematic approach to derive meaningful insights from documents and ensures analytical precision (Dalglish et al., 2020). This method involves skimming, detailed reading, and interpreting the data in a systematic way. The following steps were involved: (1) ready the materials, (2) extract the data, (3) analyse the data, and (4) distil the findings (Dalglish et al., 2020). This research aims to understand how revised Dutch river policies influence floodplain use, making the READ policy analysis by Dalglish et al. (2020) a suitable method.

For the first step, three documents regarding the revised river policies have been collected (Appendix 8.2.1). These included the RvdR2.0, HBGR-19, and BGR-25 policy documents, which were made available by the Dutch Ministry of Infrastructure and Water on its websites (Ministerie van Infrastructuur en Waterstaat, 2025a; Rijkswaterstaat, 2019; Rijkswaterstaat, 2025). To gather the data, all documents were first thoroughly skimmed (Dalglish et al., 2020). Afterwards, this research used the coding software Atlas.ti to perform an open coding process, which ensured all relevant information was taken into account and allowed room for discoveries. An operationalisation table was developed to guide the data analysis (Appendix 8.3.1). This operationalisation consisted of different dimensions that followed the main outlines of the content of the documents. First of all, the urgency of the revised policies was operationalised by including indicators, such as motivation and audience needs. The dimension of the objectives was examined by looking at the current policies, policy goals, and future perspectives that were mentioned. To explore what was written about nature-inclusive recreation, it has been analysed how both recreation and examples of existing recreation initiatives have been described. To assess the policy choices and governance dimensions, measurements, (inter)national collaborations, and financing mechanisms were analysed. Finally, the attachments were examined by looking at roadmaps, blueprints, and tables. Once the legislative constraints on nature-inclusive recreation in Dutch floodplains were sufficiently understood, the saturation point was reached (Dalglish et al., 2020). The coding table for this policy analysis is provided in Appendix 8.6.1.

3.3 Expert interviews

To gain insights into nature-inclusive recreation possibilities in Dutch floodplains, eleven semi-structured interviews were conducted with experts in the field. As experts can provide practical insights and share their experiences, interviews are well-suited for this part of the research (Bryman, 2016). The interviews were semi-structured to ensure that all relevant

topics were covered while maintaining sufficient flexibility for experts to introduce subjects they considered as important. The respondents for the interviews were selected through purposive sampling, since they had to meet certain criteria to be relevant for this research (Bryman, 2016). This research focused on nature-inclusive recreation businesses that were identified using Commonland's (2024) approach and with the expertise of Dijkwacht Buren.

On 4 March 2025, this study included participation in Dijkwacht Buren's annual information session, where residents discussed potential opportunities in the floodplains of Maurik. Various ideas were suggested, including (water) play gardens, a small harbour, an educational centre, designated swimming areas, canoeing opportunities, and walking or cycling routes. This research evaluated these ideas using the four dimensions of the Commonland framework to identify the most promising initiatives. Based on the returns related to environmental awareness, community engagement, nature restoration, and financial viability, four recreation themes were identified: (1) small-scale harbours, (2) picking gardens, (3) visitor/ information centres, and (4) nature-based holiday accommodations. These themes could also include activities offered by these businesses, such as swimming and canoeing, walking and cycling routes, (water) playgrounds, and opportunities for people distant from the labour market to work in these initiatives.

Owners, volunteers, and employees have been considered as experts in these businesses (Appendix 8.2.2). They were identified through online searches, with support from Bureau Strooming, and via snowball sampling by asking interviewees for other relevant contacts (Bryman, 2016). The interviews were conducted in person, via Microsoft Teams, or by telephone, and lasted between 20 and 45 minutes. Respondents provided informed consent and were assured that all data would be treated confidentially and with care. As this study examines Dutch floodplains, the interviews were conducted in Dutch. Afterwards, the interview guides were translated (Appendix 8.5). Interview transcripts were analysed in Atlas.ti using open coding to capture relevant information and allow new insights to emerge (Appendices 8.6.2–5).

The data analysis was supported by the Four Returns framework to assess the potential of recreation businesses for Dutch floodplains. This was chosen to do, because this framework offers a holistic approach to sustainable land-use management. Each of the four types of capital offers specific returns that contribute to the long-term success of ecosystem projects (Commonland, 2024; Ferwerda, 2015). Inspirational capital refers to giving people a sense of purpose and hope for the future (Commonland, 2024). Social capital involves creating local employment opportunities, while financial capital refers to the development of sustainable incomes. Finally, natural capital focuses on restoring nature and creating resilient, healthy landscapes (Commonland, 2024). These capitals were operationalised by

the examples mentioned in Ferwerda's (2015) research (Appendix 8.3.2). Examples include increased environmental awareness (inspirational), strengthened community engagement (social), improved water quality (natural), and higher local incomes (financial).

Scorecards

Kunz et al. (2016) established the method of 'balanced scorecards' to provide readers with a clear and comprehensive understanding of the findings. By presenting data in a visual format, this method facilitates easier interpretation and comparison of the different aspects evaluated (Kunz et al., 2016). After the data analysis, the Four Returns framework indicated how the recreation businesses performed on each return. Therefore, scorecards were developed to provide a structured overview that facilitates comparison between the examined recreation types. For each recreation type, a scorecard in the form of a horizontal bar chart was created. Horizontal green bars indicate the scores for each capital and its corresponding returns. It was decided to present these scorecards in the results chapter to directly provide visualizations of the findings for each recreation type.

3.4 Fieldwork

Studies illustrate how visualisations such as photographs or digital maps are highly effective tools in spatial planning projects (Valencia-Sandoval et al., 2009). Especially when communicating recommendations and information for complicated land-use management decisions (Valencia-Sandoval et al., 2009). Therefore, some of the interviews took place in person and were combined with participatory observations. The fieldwork included visits to the case study area in Maurik (Anker oost & west), the information centre in IJssel Den Nul, the picking garden in Bakkum, the harbour in Arnhem, and the Stadsblokken-Meinerswijk. These visits consisted of guided tours, walking through floodplains, historical storytelling, and picking flowers. Materials such as brochures and blueprints were collected, and photographs were taken. It was chosen to include selected visuals in the results chapter to highlight key features of the interviewed recreation businesses and to complement the written documentation.

3.5 Case Study

To validate the findings from the policy analysis, expert interviews, and participatory observations, this study examined the practical feasibility through a case study. The floodplains near Maurik, located next to the Nederrijn River, were chosen for the case study as this area urgently requires sustainable land-use solutions. The rapid growth of large-scale holiday parks has caused significant political tension in the municipality of Buren (Dijkwacht

Buren, 2024b). On one side, landowners and the municipality have supported large-scale holiday accommodation parks aimed at maximising profits. On the other side, residents and the local NGO Dijkwacht Buren oppose these forms of intensive recreation because they increase traffic safety risks on the dikes, harm the natural environment, and do not fit the local landscape aesthetics (Dijkwacht Buren, 2024b). Dijkwacht Buren was founded by residents to legally oppose intensive recreation developments. The ongoing local debate reflects a region facing challenges but also presenting opportunities for floodplain development, as several floodplain areas in Maurik are currently listed for sale. These areas, known as ‘Anker oost’ and ‘Anker west,’ cover approximately 40 hectares and are designated by the municipality for recreational purposes. With potential buyers motivated by the goal of safeguarding nature while developing recreational facilities, the floodplains near Maurik provide a compelling case study to examine the feasibility of this study’s findings in practice.

Analysis

The Omgevingsvisie of the municipality of Buren is the official policy document outlining the municipality’s perspective on the development of various sectors, including recreation and tourism. A government official explained that pages 99, 100, and 101 are considered the most important, as they remain the basis for current regulations on what is permitted and what is not. To understand what is possible regarding recreational development in the floodplains of Maurik, this study chose to conduct a policy analysis of Buren’s Omgevingsvisie. The policy analysis was conducted using the same READ approach applied to the national Dutch river policies (Dalglish et al., 2020). To gather information from experts on the case of Maurik and understand their interpretation of nature-inclusive recreation, six semi-structured interviews were additionally conducted. The interviews were conducted in the same manner as those with existing Dutch recreation businesses (Bryman, 2016). The respondents consisted of government officials from the municipality of Buren and Rijkswaterstaat Oost-Nederland, a potential buyer, and residents of Maurik (Appendix 8.2.3). The operationalisation table can be found in Appendix 8.3.3, and the interview guides in Appendix 8.5. Both the policy analysis and interview data were openly coded using Atlas.ti (Appendix 8.6.6).

3.6 Positionality and ethical review

This research adopts a constructivist ontological position, which holds that reality is shaped through social interactions and individual perceptions rather than being objectively fixed (Reed et al., 2009). As the researcher, I acknowledge that my concerns about climate

change and support for sustainable small-scale recreation may influence my interpretations. However, I committed to remaining open to other perspectives. Additionally, I strive for transparency throughout the research process to ensure the findings meet academic standards. Ethical approval for the interviews was confirmed through the online BETCHIE self-check, indicating no further review was required.

4. Results

4.1 Policy analysis

4.1.1 Urgency of revised policies

The overarching issue highlighted in the policy documents RvdR2.0, HBGR-19, and BGR-25 is the urgent need to revise our approach to managing rivers and their floodplains. As emphasised in the RvdR2.0 document (p. 13):

“The quality and quantity of water and natural areas are not adequately maintained. If the river system does not begin to function more effectively, this will negatively impact people, nature, the economy, and spatial planning, and could even pose a threat to the well-being and prosperity of the Netherlands.”

Both policy documents emphasise the serious risks to essential river functions, including the provision of freshwater for drinking and agriculture, effective water drainage, ecologically healthy areas, navigability, and spatial quality (HBGR-19, p. 4; RvdR2.0, p. 7). The purpose of the new RvdR2.0 policy is to achieve a *“future-proof river system that functions effectively as a whole and accommodates multiple uses”* (p. 5). This revised approach marks the first step toward concrete management measures, laying the foundation for future action. The HBGR-19 policy document offers a more practical framework of guidelines to evaluate whether activities in floodplain areas are permitted or prohibited. As stated, it is *“intended for anyone planning activities within the riverbed, from municipalities to private individuals [...]”* (p. 3). The BGR-25 document represents a revision of these guidelines, introducing additional restrictions in various zones. The main change is that previously, one zone was designated for quickly passing water, called the *“discharge capacity”*. The other zone was meant for temporarily holding water, known as *“storage capacity”* (BGR-25, p. 8). High-water events have demonstrated that the functions of river areas are often more complex than the simple division into two zones suggests (BGR-25, p. 8). Therefore, the previous rules have been replaced by a single set of regulations, which largely follow those formerly applied to the discharge capacity zone.

The documents highlight that the success depends on effective coordination between water safety and spatial planning. By establishing a shared framework for long-term climate-water resilience, these revised policies mark a critical shift towards more adaptive and future-oriented river governance.

4.1.2 Assessment framework

Since RvdR2.0 introduces a new overarching approach to Dutch river management, the HBGR-19 and BGR-25 documents were analysed for their frameworks and guidelines. As BGR-25 is the revised version of HBGR-19, this document will be the primary focus of this section, and HBGR-19 will provide additional context when needed.

The framework used to assess new activities within river systems and floodplains involves several categories, including activities exempt from permit requirements, river-related activities, and non-river-related activities (BGR-25, p. 1). Additionally, the BGR-25 document outlines general conditions for all activities in the river area. Activities are only permitted if they ensure the safe and efficient functioning of the river and do not create physical barriers that reduce discharge capacity. Any rise in water levels or reduction in storage capacity must be avoided or compensated when unavoidable (BGR-25, p. 2). These regulations aim to balance spatial development with the protection of ecological values and flood safety, supporting the sustainable and multifunctional use of floodplain areas.

“Activities exempt from permit requirements” are those that must be located and carried out so as to prevent any negative impacts on the safe and efficient operation of water management infrastructure (BGR-25, p. 1). Specifically, these include a one-time expansion of up to ten per cent of the existing building footprint, the replacement of a building with one of equal size and function, the demolition of a building, temporary uses, and other minor activities of similar nature and scale (BGR-25, pp. 1–2). *“River-related activities”* within the riverbed are governed by a *“yes, provided”* principle and permitted if they meet certain conditions, such as being nature-inclusive recreation or connected to historic brick factories (BGR-25, p. 2). These activities serve as guiding principles for floodplain development and are further detailed in Appendix 8.4.1. New *“non-river-related activities”* within floodplains are prohibited. According to the HBGR-19 document, this measure aims to reduce future risks, ensure sufficient space for water storage, and preserve the natural river flow (HBGR-19, p. 19). A *“no, unless”* principle applies, meaning these activities are prohibited unless specific circumstances apply (BGR-25, p. 2). The criteria for these circumstances are further outlined in Appendix 8.4.2.

4.1.3 Recreation possibilities

The policies provide guidelines for activities within river systems and floodplain areas. Regarding recreation, the documents emphasise the importance of preserving natural values. The policies also demonstrate how joint benefits can be achieved by integrating activities with nature (HBGR-19, p. 16; RvdR2.0, p. 32). As stated in the RvdR2.0 policy:

“Examples include combining hydraulic engineering with agricultural or recreational use and/or nature conservation. Such multifunctional land use can enhance the living environment and is therefore relevant to housing development goals.” (p. 32)

The RvdR2.0 program aims to preserve the area's identity while maximising the combined benefits of land use. By strategically integrating ecological functions with recreational value, spatial development can become more sustainable and resilient. This approach also ensures that development aligns more closely with regional needs. Regarding recreational activities, the policy documents emphasise the importance of small-scale, nature-compatible initiatives. This is referred to as “nature-inclusive floodplain recreation”, which is described as:

“A form of day recreation that causes relatively little disturbance to nature and local residents and requires minimal infrastructure. Walking and cycling are the main components of this type of recreation. Examples of facilities inherently linked to it include the construction of bicycle paths and bridges, or other structures which, due to their nature or scale, do not fall under general regulations and therefore require a permit and must be assessed against the guidelines. Large-scale structures, such as visitor centres or buildings intended for overnight stays or hospitality services, including hotels, holiday parks, restaurants, and similar facilities, do not fall under the category of nature-inclusive floodplain recreation.” (HBGR-19, p. 18)

This definition explicitly excludes intensive recreational developments that could harm the natural environment or diminish the spatial quality of the river landscape. However, the exact definition of what qualifies as nature-inclusive recreation remains vague and open to interpretation. For instance, the construction of small buildings up to 30 m² is still permitted, as long as they are functionally integrated into their surroundings and intended for on-site use (BGR-25, p. 1). The Dutch floodplains also contain numerous remnants of brick factories that used river clay for brick production in the past. These sites have held permits for many years, which influences the (re)construction of existing brick factories (BGR-25, p. 2). This creates opportunities for nature-inclusive recreational initiatives, such as small-scale

visitor centres, community gardens, and modest harbours for mooring, boat repairs, or fueling stations (BGR-25, p. 13; HBGR-19, p. 18).

The revised policies prohibit new non-river-related activities, such as large-scale holiday parks, but offer opportunities for developing small-scale, nature-inclusive recreational activities. Since the concept is not precisely defined, there is room to explore recreation initiatives in floodplains that align with these guidelines.

4.2 Existing recreation businesses

4.2.1 Small-scale harbours

One potential recreational initiative in Dutch floodplains is the development of small-scale harbours. Existing examples in the Netherlands show how mooring facilities for historic ships can function as multifunctional recreational spaces. For instance, cultural heritage education can be combined with water-based leisure activities such as swimming. The Arnhemse Stadsblokkenwerf exemplifies this integration, as the harbour is maintained by approximately seventy retired volunteers who restore historic ships and care for the site. In collaboration with the REA College, students are involved in restoration projects, contributing to both education and heritage conservation. Informational signs near the ships offer visitors insight into the site's cultural significance (see Figure 4). The shipyard is publicly accessible and features a swimming area with a coffee spot for recreational users (see Figure 5).



Figure 4. Information signs near historical ships, Stadsblokkenwerf Arnhem



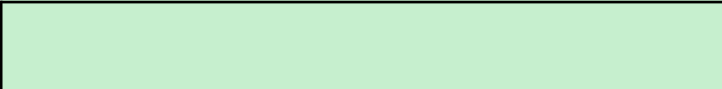
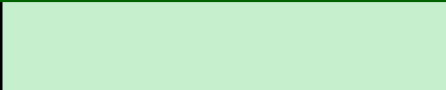
Figure 5. Hospitality services and swimming spot, Stadsblokkenwerf Arnhem

One of the founders of the Schepencarrousel (ship carousel) explained how they arrange temporary mooring spots for periods of up to three months, in cooperation with municipalities or site owners. This approach enables historic ships to remain inhabited and

maintained while offering educational and cultural value to visitors. By combining recreation, education, and heritage, the Schepencarrousel revitalises harbours and has expanded to over thirty locations in the Netherlands. One of these locations is the Sociëteitshaven Linden, a small-scale, private harbour with historic ships. One of the founders emphasised the shortage of harbours for recreational use in the Netherlands. They believe that floodplains offer great potential, as there is a growing demand for accessible mooring spots. Furthermore, they stressed the importance of carefully considering how a harbour fits within its environment. Factors such as water depth affect whether piles need to be ten or twenty metres long, which significantly impacts the investments. The harbour in Linden explained that their costs to build a mooring dock for fifteen historic ships, including related infrastructure such as parking and storage facilities, were about €250,000.

Nevertheless, opportunities emerge, as a founder of the Schepencarrousel pointed out, how historic ships enhance the local environment and strengthen social cohesion. While the ships are not inherently sustainable, careful management and operation of the harbours can help minimise their environmental footprint. According to the founder:

“I mean, as long as you make sure everything around the harbour stays clean and orderly, nature doesn’t have to suffer. And yes, you could also combine it with something educational. For example, you could provide information about the local environment at that spot, or maybe offer electric boat tours to raise awareness about the local ecology and natural surroundings.”

Scorecard: small-scale harbours		Indicators
Inspirational return		Historical education and cultural heritage
Social return		Volunteers, open access, swimming spots, Schepencarrousel
Natural return		Preserve neatness of the area, environmental awareness
Financial return		Expensive infrastructure & no or small benefits (if hospitality is present)

4.2.2 Picking gardens

Another potential nature-inclusive recreational initiative is small-scale picking gardens. Although none currently exist in Dutch floodplains, the concept offers opportunities for further exploration. Interviews with picking garden owners highlight challenges such as flooding

risks and soil types, which are often clay, sand, or peat. To manage heavy rainfall, some gardens use drainage systems or pumps. Regarding the potential for picking gardens in floodplains, one owner suggested using raised beds or selecting higher ground. Furthermore, planting water-tolerant seeds or fruit trees was recommended, as flower growth heavily depends on moisture tolerance. Most gardens reported a picking season from July to October, depending on weather conditions. To remain active year-round, the garden in Amstelveen explained that they offer seasonal activities such as pumpkin workshops in autumn and Christmas tree sales in winter. These additional activities are crucial, as all owners stated that picking gardens alone is not financially sustainable.

These additional recreational activities closely reflect the core values expressed by picking garden owners. For example, the owners of the garden in Bakkum highlighted “tourism,” “education,” “nature,” and “relaxation” as key elements of their business plan (see Figures 6 and 7). Similarly, the garden in Stoutenburg emphasised these values and added the importance of “joy” and “pleasure” for both visitors and volunteers. The owner also noted a growing interest among younger people, especially women, seeking meaningful and relaxing leisure activities. Picking gardens view their positive impact on well-being as a strong motivator for volunteering. As the garden owner in Amstelveen stated:

“The fact that it has such a relaxing and healing effect represents a very valuable solution. On the one hand, it benefits the individuals who need it, and on the other, it supports the garden itself and the organisation behind it. This ensures that there are the hands necessary to care for the plants.”



Figure 6. Impression of picking garden in Bakkum



Figure 7. Entrance with information sign and parking facilities

The gardens in Bakkum and Stoutenburg mainly rely on retired volunteers who enjoy gardening and seek peace of mind. The Amstelveen garden recruits most of its volunteers through a local volunteer centre, many of whom have a history of mental health issues. Although these volunteers are managed without external funding, the owner acknowledged the potential to seek financial support. Pursuing such funding could help integrate care services with nature-based activities, address the labour-intensive maintenance common to all the gardens, and provide a path to financial stability.

All picking gardens reported an increase in visitors, reflecting growing public interest in spending time in nature. Visitors often ask whether the gardens are organic and pesticide-free, highlighting growing concerns about ecological and health-conscious practices. The owners also noted that the impacts of climate change are intensifying and becoming increasingly unpredictable. In response, they have been adapting their gardening practices to seasonal cycles. As the owner of the garden in Bakkum emphasised:

“I often say, go with the flow of life. And to stay with water-related terms, go with the flow of the water. Increasingly, people are learning to do just that by following the current. Yes, you can try to swim against the current, but that is not sustainable.”

Scorecard: picking gardens		Indicators
Inspirational return		Nature education, experiences of joy and unwinding
Social return		Volunteers with different backgrounds, open access
Natural return		Seasonal, free from pesticides, enhanced biodiversity
Financial return		Not financially viable throughout whole year, additional activities needed

4.2.3 Visitor/ information centres

Visitor/ information centres act as gathering points where visitors can learn about nature and the local environment. They often serve as starting points for walking and cycling routes. Most centres provide information on the surrounding nature, along with basic facilities such as coffee and restrooms. Some also include restaurants that operate either independently or in partnership with the centre. Examples of Dutch visitor centres include Informatiecentrum IJssel Den Nul, Bezoekerscentrum De Blauwe Kamer, and Bezoekerscentrum Grote Rivieren Heerwaarden. The Utrechtse Landschap manages seven visitor centres across

various locations in the province of Utrecht, including the Blauwe Kamer. Their visitors range from families with children to passionate nature enthusiasts.

The centre in IJssel Den Nul is a local information centre featuring an interactive exhibition on water safety, reflecting its location within a floodplain (see Figure 8). This exhibition raises awareness of climate change impacts, particularly regarding rising water levels. Providing diverse and accessible information is considered one of the key values and benefits offered by visitor centres. As emphasised by the Utrechts Landschap foundation:

"So that is a benefit. That you can inform people in a fun way. In an educational way. Young and old people. About nature. So, that is in a way the main importance."

The educational role of visitor centres also includes explaining the cultural history of their locations. Many floodplains still contain remnants of brick factories, providing centres with opportunities to share these historical narratives. Both IJssel Den Nul and De Blauwe Kamer offer information about the history of the floodplains. The centres emphasised that the old brick factories present opportunities for new developments within the floodplains. However, developing facilities such as visitor centres in vulnerable or protected natural areas is complex and requires careful consideration to avoid environmental harm.

The Utrechts Landschap foundation shared their positive experience with a small-scale mobile visitor centre they temporarily used during renovations. They explained that a mobile centre in Zuid-Limburg, established by Natuurmonumenten, inspired this idea (see Figure 9). These mobile centres typically require less maintenance than larger centres, which depend heavily on volunteers. Moreover, IJssel Den Nul emphasised the need to carefully consider the high annual operational costs, which they estimate at €100,000 per year. Given the vulnerable floodplain areas, increasing flood risks, and high operating costs of larger visitor centres, a mobile visitor centre was suggested as a more feasible option.



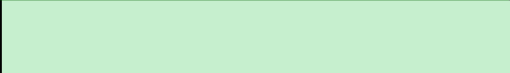
Figure 8. Interactive education of flood protection, Informatiecentrum IJssel Den Nul



Figure 9. Example of a mobile visitor centre in Zuid-Limburg
Note. From <https://www.natuurmonumenten.nl/bezoekerscentra>

Another inspiring aspect highlighted during interviews was the involvement of volunteers from the JP van den Bent foundation at IJssel Den Nul. This foundation works with people with disabilities, who assist with various tasks such as upkeep and shop management. Interviewees consistently emphasised that volunteers are essential for the operation and maintenance of visitor centres, and collaboration with such foundations could create mutually beneficial solutions. Finally, the visitor centre De Grote Rivieren Heerewaarden emphasised the importance of centres in supporting outdoor experiences:

“The reality of being outdoors, I would consider essential. Being outside and experiencing the outdoors. I see the COVID experience where people rediscovered that there is an outdoors where you can spend time.”

Scorecard: <u>visitor/information centres</u>		Indicators
Inspirational return		Information on cultural history and (natural) environment
Social return		Open access, volunteers
Natural return		Starting point walking and cycling routes, nature-education
Financial return		No/ small financial benefits, subsidies and donations needed

4.2.4 Nature-based holiday accommodations

Floodplain areas offer opportunities for small-scale holiday accommodations, such as nature-based campsites. One of the owners of Oosterbeeks Rijnoever explained that there has been a growing interest among people in spending their holidays in natural surroundings. Visitors to the nature campsite were described as:

“Mainly people who want to get away from society for a while and seek peace and quiet. We don’t offer entertainment or options to choose from. We simply offer camping. And people really appreciate that.”

The campsite at Oosterbeeks Rijnoever is characterised by its focus on traditional, minimalist camping (see Figure 10). The campsite offers only basic facilities, such as pitches, electricity, and sanitation, while organised entertainment programs are intentionally excluded. This approach distinguishes it from more commercial alternatives, and its popularity reflects an increasing demand for simplicity and nature-based experiences. One

of the owners explained that since taking over the campsite several years ago, all 60 pitches have been fully booked each season from April to October. The owner emphasised the added value of the campsite's location near the city of Arnhem, as visitors have easy access to cycling and walking routes that enable exploration of the area's cultural heritage. The campsite is family-owned and operated by the couple, with assistance from family members, neighbours, and returning guests. A sense of community is central to their vision, and they aim to create a shared experience in which visitors feel a sense of belonging.



Figure 10. On the left, small pitches for tents located between the trees, and on the right are mooring dock facilities
Note. From <https://www.oosterbeeksrijnoever.nl/camping/>

This emphasis on community engagement is also a core value of VELD, a foundation with a business plan focused on providing regenerative accommodation and activities. Although VELD is still in the process of securing a permanent location, its mission is to create an inclusive space where people can enjoy holidays in nature while learning about regeneration. The concept partly emerged as a response to greenwashing practices prevalent within the mainstream recreation sector.

"I was booking cabins in nature and was constantly disappointed. It all felt artificial, very plastic, and a lot of greenwashing. This ties into my aversion to marketing. Communication and storytelling can do a lot of good, but they can also be incredibly misleading. And I see that a lot in this field."

VELD's vision centers on integrating regeneration for and by visitors, within the business model, and for the environment itself. In this context, regeneration refers to the process of restoring and improving natural environments and ecosystems sustainably to enhance their health and resilience. The accommodation facilities would be located within the natural environment, allowing nature to run its course. By creating a place where all these aspects come together, this business plan responds to the growing demand for nature-based holiday accommodations (see Figure 11).



Figure 11. Aesthetics of VELD atmosphere for nature restoration, accommodations, and educational facilities

Note. From <https://www.veld.land/>

Both the VELD foundation and the Oosterbeeks Rijnoever nature campsite prioritise nature restoration that stems from a commitment to support both the environment and future generations. The goal of the campsite Oosterbeeks Rijnoever is to coexist with nature rather than to control or restrict it. Climate change poses its greatest challenge, especially due to the increasing unpredictability of heavy rainfall and prolonged droughts. The campsite's location along the Nederrijn River, which is fed by meltwater, means that water levels can rise rapidly but also fall quickly. However, the owner explained that this natural fluctuation is regarded as an advantage, as it supports the regeneration of both the land and its ecosystem. In contrast, campsites situated further inland may remain flooded for extended periods following heavy rainfall. As one of the owners explained:

"In winter, the entire field is empty and this allows nature to recover. Unlike other campsites open year-round with seasonal spots that are fenced, we believe nature needs time to breathe and restore itself. That's part of our vision. It's also practical. If there's high water in the winter, it's no problem because there's nothing on the field."

Scorecard: <u>nature-based holiday accommodations</u>			Indicators
Inspirational return			Regeneration, nature education, holiday experiences
Social return			Community engagement, open access
Natural return			In harmony with nature and seasons, restoring nature
Financial return			Cost-effective depending on business plan

4.3 Floodplains in Maurik

4.3.1 Towards a new balance

The floodplains in Maurik are recognised by interviewees as uniquely situated, multifunctional landscapes with significant cultural and historical value. Rijkswaterstaat Oost-Nederland emphasised the importance of critically assessing the suitability of any new initiative introduced to the area. The *Omgevingsvisie* (Environmental Vision) emphasises the need for a balanced integration of nature conservation, recreation, and economic development (p. 4):

“We want Buren as we have known it for a very long time, but also to grow along with changes in society. We want to cherish the qualities and social strength in our communities while simultaneously allowing space for new desires in society. So we want to remain in balance, but with a new balance. And that has become the starting point of our environmental vision: ‘Buren, towards a new balance’.”

This emphasis on balance is also reflected in the views of the local community. According to Kock’s research (2024) on sustainable development pathways for the floodplains near Maurik, residents expressed specific needs, including improved access to the floodplains, more green public spaces, and the integration of educational elements that provide information about the landscape. An interview with a government official from Buren further revealed that approximately 80% of recreational visitors to the area are local residents or people living nearby, underscoring the importance of aligning future developments with local needs and preferences. Gerard, a resident of Maurik and member of Dijkwacht Buren, emphasised that well-being, health, and the environment are inherently interconnected, yet solutions are often pursued within separate sectors rather than through an integrated approach. Interviewees consistently emphasised the potential of combining multiple functions, highlighting the importance of ensuring that new recreational activities integrate various aspects of inspirational, social, natural, and financial capital into holistic initiatives.

4.3.2 Floodplain areas for sale

In Maurik, the floodplain areas Anker Oost and Anker West are currently for sale. One of the potential buyers envisions recreational initiatives aimed at supporting young people who face barriers to entering the labour market. For instance, they might be involved in maintaining a small-scale harbour and restoring historical ships. This entrepreneur supports initiatives that

contribute positively to society. Therefore, other potential activities could include participation in a community garden or the operation of a small-scale visitor centre.

The second prospective buyer is the founder of the VELD foundation, mentioned earlier in the section on potential recreational businesses. As VELD is currently seeking a location, she explained that the floodplain areas in Maurik represent a highly suitable option. In VELD's vision, the area would be freely accessible to the public, with active involvement from the local neighbourhood considered particularly important. Residents would be encouraged to use the area for walking, picnicking, and participating in events such as neighbourhood barbecues. Furthermore, VELD explained that recreation could create win-win opportunities by integrating multiple aspects and establishing multifunctional land use. As highlighted in the interview:

“Recreation is actually a means to an end. It serves both as a financial tool to maintain sustainability and as a way to engage people more deeply without requiring them to have a prior strong interest in sustainability. It's an effective way to plant those initial seeds. I also believe there is a strong demand, especially among those from urban areas, to find some peace and quiet. To truly experience nature, even if only for a short time.”

Both perspectives of the potential buyers offer ideas that align with the four examined recreation initiatives: small-scale harbours, picking gardens, visitor or information centres, and nature-based holiday accommodations. This research may strengthen their business cases by providing evidence-based support.

4.3.3 Harmonising recreation within local landscapes

During the interviews, all participants were asked for their views on the four forms of nature-inclusive recreation. Responses from the municipality of Buren, Rijkswaterstaat Oost-Nederland, and local residents were positive, and all participants acknowledged the potential of these initiatives. Nevertheless, several important considerations emerged during the interviews.

Firstly, any recreational activity should contribute to the local community through education and information. Moreover, such activities need to remain openly accessible to the public, and initiatives should be small in scale to ensure safety on the dikes. Lastly, recreational initiatives should be in harmony with the visual character of the local landscape. In particular, this aspect was emphasised most strongly during the interviews. Freek, a Maurik resident and member of the local NGO Dijkwacht Buren, emphasised that any recreational development must enhance the natural landscape. As he explained:

“By increasingly allowing more and larger-scale recreation, the municipality is essentially throwing the baby out with the bathwater. What makes the area truly special, its unique selling point, is the beauty of the landscape and the character of the floodplains. And then you spoil that by building a holiday park in that very same landscape.”

These considerations are important to keep in mind when designing new nature-inclusive recreation initiatives. Additionally, it is crucial to acknowledge that each location is unique and therefore requires a context-specific approach.

4.4 Defining nature-inclusive recreation

A government official of the municipality of Buren noted that the difference between nature-inclusive and intensive recreation (e.g. large-scale holiday parks) depends mostly on the perspective of decision-makers rather than what is written in formal policies. The ambiguity of the concept appears both in the policy frameworks as in the interview responses. Although the *Omgevingsvisie* mentions nature-inclusive recreation several times, it does not offer a precise definition (pp. 16, 97, 101). Similarly, other policy documents only reference nature-inclusive recreation with examples like walking routes or canoeing (BGR-25, p. 20; HGBR-19, p. 18). This was also highlighted by a representative from Rijkswaterstaat Oost-Nederland, who explained:

“Because what can you really consider the extraction of a surface mineral? Or, for that matter, what do we actually define as nature-inclusive water-based recreation? With all these things, there are always large grey areas.”

The lack of clarity creates uncertainty and leads to the risk that innovative initiatives are overlooked or rejected due to the absence of concrete guidelines. When interviewees were asked to define nature-inclusive recreation, the responses included examples of how it should be at least small-scale and fit into a local landscape. Based on the insights from these expert interviews, additional fieldwork, and policy analyses, this research sets out a holistic and clear definition. Hereby, this research proposes to refer to nature-inclusive recreation as small-scale, accessible, and landscape-fitting initiatives that holistically integrate inspirational, social, natural, and financial aspects to support future-proof development.

5. Discussion

This research has examined how revised Dutch river policies create both constraints and opportunities for the development of recreation possibilities in floodplain areas. By analysing the relevant policy documents, evaluating existing recreation businesses in the Netherlands, and conducting a case study in Maurik, this research examined what was needed to understand how various ecological, economic, and societal aspects need to be aligned. When recreational developments are designed holistically, they offer promising possibilities for what is important for both ecosystems and local communities. A critical observation arises when the results highlight how the success of recreational initiatives in floodplain areas strongly depends on local context and conditions. Environmental factors such as soil type, and flood risks play a key role. Community support and political dynamics also differ per location and shape what is possible. These local differences show that any large-scale, one-size-fits-all approach is unlikely to work. Instead, flexible and context-sensitive strategies are needed to ensure that recreational projects fit the local ecological, societal, and political environment. By systematically conducting a READ policy analysis with the same steps for both the Dutch national river policy analysis as well as the local policy analysis for the case study in Maurik, this research strived to ensure validity and reliability of the findings. The same has been done for all the seventeen interviews with experts that have been conducted with a semi-structured approach, and analysed with an open coding process, using the Four Returns framework to evaluate the results (Ferwerda, 2015).

The findings reveal that intensive, non-river-related recreational projects are restricted under the new policies, and only small-scale, river-related activities are permitted. This shift reflects a broader transition in Dutch river system management, where climate adaptation is becoming increasingly important. However, as expected, the success of such projects depends on more than just policy compatibility. Environmental conditions, spatial planning complexities, and the ambiguity of the term ‘nature-inclusive recreation’ pose practical challenges. Nevertheless, it is possible to establish guidelines, as this research indicated four potential initiatives designated for nature-inclusive recreational floodplain development. The possibilities of developing small-scale harbours, picking gardens, visitor/information centres, and nature-based holiday accommodations contribute to the broader societal discussion on how to make the Dutch river landscape more multifunctional, and climate-resilient. The literature review revealed that there is an academic gap in what is understood as ‘nature-inclusive recreation’ (Breman et al., 2022; Runhaar, 2017; Tew et al., 2019). During this research, it also became clear that ‘nature-inclusive recreation’ is marked by grey areas in both policies and practices. Based on all the findings, a definition for nature-inclusive recreation is proposed by referring to “*small-scale, accessible, and*

landscape-fitting initiatives that holistically integrate inspirational, social, natural, and financial aspects to support future-proof development". This definition is intended to enrich the existing literature on nature-inclusive recreation and serves as a starting point to use as a guideline in the development of recreation in Dutch floodplains. Foundations for future policy development have been laid, and the results are applicable in practice for recreation entrepreneurs and area managers. Further application and examination among researchers, policymakers and recreation entrepreneurs is encouraged to validate this definition in other cases. In this research, the four types of recreational opportunities in Dutch river floodplains illustrate the proposed definition. Above all, they address the growing societal demand for accessible natural areas for recreation, while ensuring no harm is done to the environment.

While the results provide valuable insights, several limitations and contextual factors must be considered when interpreting the findings of this research. One important limitation relates to the location of the recreation businesses that have been interviewed. Not all of the businesses examined, such as the picking gardens, were located directly within floodplain areas. As floodplain environments come with unique ecological, hydrological, and spatial conditions, these may not be fully represented by recreation initiatives located outside these areas. For example, the soil saturation and flood risk inherent to floodplains clearly indicate challenges for activities like gardening. Future research should, for instance, examine the practices of gardening in floodplain areas to better understand how these specific conditions affect feasibility and sustainability. Moreover, due to the limited scope and timeframe of three months for this study, not all nature-inclusive recreation possibilities could be included. This research used the Four Returns framework to indicate the four recreation initiatives. However, the policy documents and literature mentioned other examples like canoeing and walking paths. As this research did not explicitly examine the possibilities of such examples, it discovered that these activities were most of the time already offered within the interviewed businesses. For instance, the visitor centre in IJssel Den Nul is the starting point for walking routes and also includes a water playground for children. Furthermore, the harbour in Arnhem also facilitates a swimming spot openly accessible for recreational users. Nevertheless, some relevant businesses or possible nature-inclusive recreations have perhaps been overlooked, and further research could complement this. Additionally, this qualitative study could be complemented with quantitative data such as surveys among residents or geospatial analysis (GIS). In this context, ongoing and upcoming policy adjustments scheduled for 2026 present a valuable opportunity (Ministerie van Infrastructuur en Waterstaat, 2025b). Monitoring future policy revisions and their impact on floodplain recreation will be essential for understanding how governmental frameworks adjust to changing environments and evolving needs of local communities.

6. Conclusion

This research aimed to answer the question: *What guidelines are needed to ensure that nature-inclusive recreation in Dutch floodplains aligns with climate-adaptive river policies and societal needs?* First of all, the revised Dutch river policies RvdR2.0, HBGR-19, and BGR-25 implement stricter regulations and approaches to the potential use of the floodplains. Intensive forms of recreation, such as large-scale holiday parks or hospitality facilities, attract high visitor numbers, resulting in traffic congestion and environmental degradation. Consequently, such activities are no longer permitted within floodplain areas. Nevertheless, the revised policy frameworks still provide sufficient flexibility to enable nature-inclusive and multifunctional recreational development within floodplain zones. By using Commonland's Four Returns framework, this research indicated four potential nature-inclusive recreation initiatives: (1) small-scale harbours, (2) picking gardens, (3) visitor/ information centres, and (4) nature-based holiday accommodations. Interviews with experts in existing Dutch recreation businesses illustrated how each initiative scores on inspirational, social, natural, and financial capital.

Perhaps the most promising initiative based on this evaluation tool is the development of nature-based holiday accommodation. This initiative performs well across all four return dimensions, while remaining accessible to surrounding residents and encouraging community feelings. A visitor centre also presents a promising initiative, particularly for its high inspirational return through public education about nature and cultural heritage. However, the financial returns are limited due to the cost-effectiveness. Therefore, alternatives such as mobile centres or QR-code-based information provisioning are recommended as solutions. Small-scale harbours perform well in terms of inspirational and social returns by preserving cultural heritage and encouraging community involvement. However, they generally score lower on ecological and financial returns due to the environmental impacts of ships and high costs for infrastructure, which limits their long-term viability. Picking gardens face similar viability challenges. While they perform well in natural, social, and inspirational capital by promoting seasonal living, enhancing biodiversity, and engaging volunteers, their financial sustainability is limited due to seasonal profitability and practical challenges such as weather conditions. However, design adaptations, such as elevated beds or planting fruit trees instead of traditional flower beds, are recommended, offering viable solutions.

The case of Maurik illustrated the importance of harmonising new recreation activities within the local landscape, being openly accessible, and operating on a small-scale basis. When supported by adaptive planning and community engagement, the four recreation initiatives can enhance both the liveability and resilience of Dutch floodplains. Following

these findings, this research proposed to define nature-inclusive recreation as small-scale, accessible, and landscape-fitting initiatives that holistically integrate inspirational, social, natural, and financial aspects to support future-proof development. At a time of increasing demand for access to nature in public spaces, this definition of nature-inclusive recreation offers relevant guidelines. In doing so, this research not only answers the central research question but also underscores the broader potential of integrating ecological, social, and economic values into the sustainable development of river landscapes in the Netherlands. The four recreation opportunities for Dutch river floodplains capture the essence of what is needed needed when we are simultaneously facing climate change and increasing recreational demands.

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8. Appendices

8.1 Abbreviations list

ANWB	<i>Algemene Nederlandse Wielrijdersbond</i> : this organisation is translated as the Royal Dutch Touring Club. Their goal is to help everyone travel safely.
BGR-25	<i>Beleidsregels Grote Rivieren 2025</i> : this is the revised policy document with guidelines for major rivers.
CES	Cultural ecosystem services: examples are recreation, aesthetic quality, sense of place, and religious practices.
ES	Ecosystem services: examples are flood protection, providing fresh water, enhancing biodiversity, and simply enjoying nature.
HBGR-19	<i>Handreiking Beleidslijnen Grote Rivieren 2019</i> : this is the policy document with guidelines for major rivers. This document is a revised version of the first launched guidelines in 2006.
RvdR2.0	<i>Ruimte voor de Rivier 2.0</i> : this is the policy document with new launched program which is a follow-up on the first Room for the river program launched in 2006.
WNF	<i>Wereld Natuur Fonds</i> : Dutch organisation of the international World Nature Foundation.

8.2 Tables of information

8.2.1 Policy documents details

Policy document	Year of publication	Authors	Pages
Ruimte voor de Rivier 2.0	2025	Ministerie van Infrastructuur & Water Partners Rijk & Regio	52
Handreiking Beleidslijnen Grote Rivieren	2019	Rijkswaterstaat Ministerie van Infrastructuur & Water	46
Beleidsregels Grote Rivieren	2025	Rijkswaterstaat Ministerie van Infrastructuur & Water	30 *2-11 (most important; but whole document is scanned)
Omgevingsvisie Buren	2022	Gemeente Buren LOS stadomland B.V.	172 *99-101 (most important; but whole document is scanned)

8.2.2 Interview details recreation businesses

	Name	Location	Interviewee	Key characteristics
Recreation business				
Small-scale harbours	Schepencarrousel	Not specified	Founder	Cultural/educational harbour concept
	Stadsblokkenwerf Arnhem	Arnhem	Volunteer	Public waterfront project with historic value
	Sociëteitshaven Linden	Linden	Member and founder	Small-scale private harbour historical ships
Picking gardens	Pluktuin Bakkum	Bakkum	Owner	Community-focused, small-scale
	Pluktuin Amstelveen	Amstelveen	Owner	Commercially oriented
	Pluktuin Stoutenburg	Stoutenburg	Owner	Linked to farming activities
Visitor/ information centres	Informatiecentrum IJssel Den Nul	IJssel Den Nul	Financial coordinator	Local visitor centre
	Stichting Utrechtse Landschap (Blauwe Kamer)	Rhenen	Restoration coordinator	7 centres in province of Utrecht
	Bezoekerscentrum De Grote Rivieren Heerewaarden	Heerewaarden	Owner	Commercial visitor centre
Nature-based holiday accommodations	Nature camping	Oosterbeeks Rijnsoever	Owner	Nature-based, small-scale camping
	VELD foundation	No location yet	Founder	Focus on regenerative, small-scale accommodation

8.2.3 Interview details case study Maurik

Interviewee	Specification
Municipality of Buren	Department of Recreation, Economy and Tourism
Municipality of Buren	Department of Water and Sewerage
Rijkswaterstaat Oost-Nederland	Permit officer
Expert recreational development in Dutch river areas	Bureau Stroming and developer of Stadsblokken-Meinerswijk
Potential buyer	VELD foundation
Resident from Maurik (1)	Freek (also Member of Dijkwacht Buren)
Resident from Maurik (2)	Gerard (also Member of Dijkwacht Buren)

8.3 Operationalisation tables

8.3.1 Operationalisation table policy analysis

Dimension	Indicators
Urgency	- Motivation - Dutch history of water management - Audience needs
Objectives	- Current policies - Policy goals - Future perspectives
Recreation	- Intensive recreation - Nature-inclusive recreation - Recreation activities (existing examples)
Policy choices	- Spatial implications - Measurements - Rules and restrictions
Governance approaches	- Other policy frameworks - Collaborations - Financing
Attachments	- Roadmaps - Blueprints - Illustrations, graphs or tables

8.3.2 Operationalisation table recreation businesses

Dimension	Indicators
Inspirational capital	- Information: nature, animals, water safety, climate change, etc. - Education: exhibitions and expeditions (guided tours) - Cultural history and heritage
Social capital	- Volunteers (retired, distance to labor market, etc.) and job opportunities - Open access to the location - Events (for local community)
Natural capital	- Landscape (water) quality and aesthetics - Biodiversity - Eco-friendly - Restoration practices
Financial capital	- Investment needs - Operational costs - Local incomes - Long-term viability

8.3.3 Operationalisation table case study Maurik

Dimension	Indicators
Policies	- Current view - Guidelines and frameworks - Main limitations and opportunities
Nature-inclusive recreation	- Definition - Interpretation - Feasibility of proposed nature-inclusive recreation initiatives - Other examples
Process	- Financial aspects (subsidies, donations, etc.) - Collaborations (stakeholders, relevant businesses, etc.) - Permits/ evaluation
Local community	- Impact - Accessibility - Engagement: events, job opportunities, volunteers, etc.

8.4 Policy assessment frameworks

8.4.1 Rivier-related activities

“Notwithstanding the provisions of Article 6, paragraphs one and two, permission is granted for the following activities:

- a. the construction or modification of a hydraulic engineering structure;*
- b. the construction of a facility for improved and safe handling of commercial or recreational shipping;*
- c. the construction or modification of a hydropower plant;*
- d. the establishment or expansion of a transshipment company or the realization of a transshipment facility, provided that this activity is linked to transportation over the river;*
- e. the construction or modification of a shipyard for commercial or pleasure vessels and specifically related activities as referred to in Article 3.144 of the Environmental Activities Decree;*
- f. the construction, management, or improvement of nature;*
- g. the improvement of water quality;*
- h. the expansion or modification of an existing brick factory;*
- i. the construction of a facility that is inextricably linked to water recreation or nature-inclusive floodplain recreation;*
- j. the extraction of surface minerals;*
- k. the construction of a necessary facility for agricultural, landscape, or comparable management of the riverbed;*
- l. the preservation or restoration of landscape elements or cultural heritage, especially known or demonstrably expected archaeological monuments;*
- m. the construction of a facility for drinking water extraction and aquathermal energy.”*
(BGR-25, p. 2)

8.4.2 Non-river-related activities

“For non-river-related activities, permission is not granted unless, without prejudice to the provisions of Article 6, one of the following applies:

- a. the construction of a facility of major public interest that reasonably cannot be realized outside the riverbed;*
- b. an activity with an economic interest for an existing land-based agricultural business that reasonably cannot be carried out outside the riverbed;*
- c. the sustainability improvement of the energy supply of an existing activity in the riverbed;*
- d. or the construction of a facility for electricity generation by solar or wind energy that reasonably cannot be realized outside the riverbed.”* (BGR-25, p. 2)

8.5 Interview guides

8.5.1 Interview guide recreation businesses

A. Introduction

Thank you very much for taking the time to participate in this interview. My name is Britt, and I am a master's student at the Vrije Universiteit Amsterdam. For my thesis, I am evaluating possible nature-inclusive recreation initiatives for Dutch floodplains that fit within the new Room for the River 2.0 policy and the revised policy rules for the Major Rivers (2025).

In the Nederrijn floodplains near Maurik, there is an area of about 40 hectares for sale, half of which consists of water, and there are several old brick factory sites where constructions could be possible (Anker oost & west). The current owners wanted to build large-scale holiday parks there, but the residents opposed this and the municipality did not approve those plans and are also no longer possible under the new policies. As a result, the land is for sale now and there are two potential buyers with nature-friendly recreation wishes.

I expect that your insights will be of great value for my research. The interview will take about 30 minutes, depending on your availability, and consists of several open-ended questions.

B. Consent

You can always choose to skip a question or end the interview at any time. Before we start, I need to ask: do you consent to this interview being recorded and your answers being used for my research?

If you wish, your name will remain completely anonymous in the transcript and in my thesis, and only your role as a business owner/ volunteer will be mentioned. All recordings will be deleted once the research is completed. If you do not consent to recording, I will take notes instead.

Do you have any questions at this moment? Do you agree to participate in this interview?

C. Interview

C1. Introduction

- Could you please introduce yourself?
- Could you describe your work or related activities?
- What types of recreation do you offer?
 - Which are used most frequently?
- Are there volunteers involved?
 - What roles do they play?
- To what extent do you see opportunities for our idea of [recreation initiative] in Dutch floodplains?
 - Where should someone start?
 - What factors need to be considered?
 - What challenges come with setting up such an initiative?
 - Would you recommend it to others?

C2. Financial & ownership

- What main costs are involved in setting up a [recreation initiative]?
 - What are the approximate costs of construction?
 - What ongoing costs, such as maintenance, staff, insurance, etc., should be considered in the long term?
- What financial returns does it generate?
- Are subsidies available from the municipality or financial support from other organizations?
- How is the ownership structure organized?
 - Is it owned by a foundation that rents out, or is it organized differently?
- Who benefits?
 - Local residents, the municipality, nature?

C3. External collaborations

- What role has the municipality played in starting or maintaining this initiative?
- Have you collaborated with external partners or companies on similar projects that could also be relevant for a [recreation initiative] in Dutch floodplains?

C4. Sustainability

- How have you integrated sustainability into the design of the [recreation initiative]?
For example, regarding:
 - Accessibility
 - Nature-friendliness
 - Aesthetics
- To what extent does the [recreation initiative] contribute to increasing environmental awareness among the visitors and/or local community?
- To what extent have you been able to integrate educational or cultural elements into the [recreation initiative]?

C5. Society

- To what extent is there an impact on (community engagement of) the local community?
 - Organised events?
- To what extent have you observed effects on employment (or volunteer work) for the local community?

C6. Additional Information

- Do you know any similar businesses (in Dutch floodplains) or someone you think would be interested to speak with for this research?
- Do you have any additional insights, thoughts or suggestions to add?

D. Closing

Thank you very much for your time today. If you are interested, I would be happy to share the research results with you by email. Have a great day.

8.5.2 Interview guide municipality of Buren

A. Introduction

Thank you very much for taking the time to participate in this interview. My name is Britt, and I am a master's student at the Vrije Universiteit Amsterdam. For my thesis, I am evaluating possible nature-inclusive recreation initiatives for Dutch floodplains that fit within the new Room for the River 2.0 policy and the revised policy rules for the Major Rivers (2025).

In the Nederrijn floodplains near Maurik, there is an area of about 40 hectares for sale, half of which consists of water, and there are several old brick factory sites where constructions could be possible (Anker oost & west). The current owners wanted to build large-scale holiday parks there, but the residents opposed this and the municipality did not approve those plans and are also no longer possible under the new policies. As a result, the land is for sale now and there are two potential buyers with nature-friendly recreation wishes.

I expect that your insights will be of great value for my research. The interview will take about 30 minutes, depending on your availability, and consists of several open-ended questions.

B. Consent

You can always choose to skip a question or end the interview at any time. Before we start, I need to ask: do you consent to this interview being recorded and your answers being used for my research?

If you wish, your name will remain completely anonymous in the transcript and in my thesis, and only your role as a business owner/ volunteer will be mentioned. All recordings will be deleted once the research is completed. If you do not consent to recording, I will take notes instead.

Do you have any questions at this moment? Do you agree to participate in this interview?

C. Interview

C1. Introduction

- Could you briefly introduce yourself?
- Could you describe your role and responsibilities?

C2. Policies

- What is the current view of the municipality of Buren on recreational development in the floodplains near Maurik?
- Which policy frameworks and ambitions guide the spatial development of floodplains within the municipality?
 - *Ruimte voor de Rivier 2.0* [Room for the River 2.0]
 - *Beleidsregels Grote Rivieren 2019 & 2025* [Guidelines for Major Rivers]
- In your experience, what are the main points of attention or limitations for entrepreneurs?

C3. Nature-inclusive recreation

- How would you define *nature-inclusive recreation*?
- Do you see opportunities for nature-inclusive recreation in the floodplains near Maurik? Why or why not?
 - To what extent could a project such as a small harbour potentially gain support?
 - What about a small-scale visitor centre?
 - And a picking garden?
 - Lastly, what about a nature-based holiday accommodation?
- Are there any examples of nature-inclusive recreation the municipality saw before that could serve as inspiration?
 - Or do you know of any other practical examples elsewhere in the Dutch floodplains?

C4. Process

- In your opinion, what are the key steps initiators should take to develop a successful project plan?
- Which parties need to be involved? (e.g., Rijkswaterstaat, Provinces, Water Boards, Nature Organizations)
- Are there municipal funds, subsidies, or other resources available to support such initiatives?
- How does the municipality evaluate non-financial benefits, such as education, inclusion, and nature, when assessing recreational projects?

C5. Local community

- Do you have experience with the impact on (community engagement of) the local community?
- To what extent have you observed effects on employment (or volunteer work) for the local community when recreation businesses enter the municipality?

C6. Additional information

- What advice would you give to future initiators who want to start something in the floodplains?
- Is there anyone else inside or outside the municipality you would recommend I speak to?
- Is there anything else you would like to add that I haven't asked, but you think is important?

D. Closing

Thank you very much for your time today. If you are interested, I would be happy to share the research results with you by email. Have a great day.

8.5.3 Interview guide Rijkswaterstaat Oost-Nederland

A. Introduction

Thank you very much for taking the time to participate in this interview. My name is Britt, and I am a master's student at the Vrije Universiteit Amsterdam. For my thesis, I am evaluating possible nature-inclusive recreation initiatives for Dutch floodplains that fit within the new Room for the River 2.0 policy and the revised policy rules for the Major Rivers (2025).

In the Nederrijn floodplains near Maurik, there is an area of about 40 hectares for sale, half of which consists of water, and there are several old brick factory sites where constructions could be possible (Anker oost & west). The current owners wanted to build large-scale holiday parks there, but the residents opposed this and the municipality did not approve those plans and are also no longer possible under the new policies. As a result, the land is for sale now and there are two potential buyers with nature-friendly recreation wishes.

I expect that your insights will be of great value for my research. The interview will take about 30 minutes, depending on your availability, and consists of several open-ended questions.

B. Consent

You can always choose to skip a question or end the interview at any time. Before we start, I need to ask: do you consent to this interview being recorded and your answers being used for my research?

If you wish, your name will remain completely anonymous in the transcript and in my thesis, and only your role as a business owner/ volunteer will be mentioned. All recordings will be deleted once the research is completed. If you do not consent to recording, I will take notes instead.

Do you have any questions at this moment? Do you agree to participate in this interview?

C. Interview

C1. Introduction

- Could you briefly introduce yourself?
- Could you describe your role and responsibilities?

C2. Policies

- What is the current view of the Rijkswaterstaat Oost-Nederland on recreational development in the floodplains near Maurik?
- Which policy frameworks guide your evaluation of initiatives in the floodplains?
 - *Ruimte voor de Rivier 2.0* [Room for the River 2.0]
 - *Beleidsregels Grote Rivieren 2019 & 2025* [Guidelines for Major Rivers]
- In your experience, what are the main points of attention or limitations for entrepreneurs?
- From your position as a permitting officer, what do you see as the most significant change or constraints in comparison with previous policy frameworks?

- RvdR2.0 emphasizes combining functions, such as recreation with nature or water safety. To what extent do you see room for such multifunctional initiatives in the permitting process?
 - Are there already examples or cases where the new RvdR2.0 focus played a direct role in the evaluation of an initiative?
- How do you deal with proposals that are overlapping or not clearly described in the policy guidelines but still relevant?

C3. Nature-inclusive recreation

- How would you define *nature-inclusive recreation*?
- Do you see opportunities for nature-inclusive recreation in the floodplains near Maurik? Why or why not?
 - To what extent would you permit a project such as a small harbour?
 - What about a small-scale visitor centre?
 - And a picking garden?
 - Lastly, what about a nature-based holiday accommodation?
- Are there any examples of nature-inclusive recreation that Rijkswaterstaat Oost-Nederland saw before that could serve as inspiration? Or do you know of any other practical examples elsewhere in the Dutch floodplains?

C4. Process and collaboration

- In your opinion, what are the most important steps to bring an initiative to the permitting stage?
- What are the *do's and don'ts* in the application process?
- To what extent does Rijkswaterstaat consider benefits such as education, inclusion, or nature conservation when evaluating proposals?
- Which stakeholders are typically involved when starting up such projects? (e.g. the province, water boards, nature organizations, etc.)

C5. Local community

- Do you have experience with the impact on (community engagement of) the local community?
- To what extent have you observed effects on employment (or volunteer work) for the local community when [recreation] businesses enter the municipality?

C6. Additional information

- What advice would you give to future initiators who want to start something in the floodplains?
- Is there anyone else inside or outside Rijkswaterstaat Oost-Nederland you would recommend I speak to?
- Is there anything else you would like to add that I haven't asked, but you think is important?

D. Closing

Thank you very much for your time today. If you are interested, I would be happy to share the research results with you by email. Have a great day.

8.5.4 Interview guide Bureau Stroming (Stadsblokken-Meinerswijk)

A. Introduction

Thank you very much for taking the time to participate in this interview. My name is Britt, and I am a master's student at the Vrije Universiteit Amsterdam. For my thesis, I am evaluating possible nature-inclusive recreation initiatives for Dutch floodplains that fit within the new Room for the River 2.0 policy and the revised policy rules for the Major Rivers (2025).

In the Nederrijn floodplains near Maurik, there is an area of about 40 hectares for sale, half of which consists of water, and there are several old brick factory sites where constructions could be possible (Anker oost & west). The current owners wanted to build large-scale holiday parks there, but the residents opposed this and the municipality did not approve those plans and are also no longer possible under the new policies. As a result, the land is for sale now and there are two potential buyers with nature-friendly recreation wishes.

I expect that your insights will be of great value for my research. The interview will take about 30 minutes, depending on your availability, and consists of several open-ended questions.

B. Consent

You can always choose to skip a question or end the interview at any time. Before we start, I need to ask: do you consent to this interview being recorded and your answers being used for my research?

If you wish, your name will remain completely anonymous in the transcript and in my thesis, and only your role as a business owner/ volunteer will be mentioned. All recordings will be deleted once the research is completed. If you do not consent to recording, I will take notes instead.

Do you have any questions at this moment? Do you agree to participate in this interview?

C. Interview

C1. Introduction

- Could you briefly introduce yourself?
- Could you describe your role and responsibilities?

C2. Bureau Stroming

- How does Bureau Stroming approach the development and design of new recreation initiatives?
- Where should someone start?
- What factors need to be considered?
- What challenges come with setting up such an initiative?
- Would you recommend it to others?

C3. Vision (Stadsblokken-Meinerswijk)

- How do you define the core values of Stadsblokken-Meinerswijk, and in what ways are these values safeguarded throughout the area's development?
- How is the balance between nature development, recreation, and potential construction within the current plans?
- What role do collaborations with landowners, residents, government bodies, and experts play in shaping the business plan?
- How is the project aiming to create returns that benefit both the area and the city of Arnhem?
- Are there any examples of initiatives within the area that are both economically viable and ecologically responsible?

C4. Local community

- Do you have experience with the impact on (community engagement of) the local community?
- To what extent have you observed effects on employment (or volunteer work) for the local community when [recreation] businesses enter the municipality?

C5. Potential nature-inclusive recreation initiatives

What is your perspective on the following ideas:

- A small-scale harbour: historical ships and *Schepencarrousel*
- A picking garden: with fruit trees
- A small-scale visitor centre: potentially mobile/ on wheels and/or with QR-codes
- Nature-based holiday accommodations: nature campings or VELD foundation

C6. Additional Information

- Do you know any similar businesses (in Dutch floodplains) or someone you think would be interested to speak with for this research?
- Do you have any additional insights, thoughts or suggestions to add?

D. Closing

Thank you very much for your time today. If you are interested, I would be happy to share the research results with you by email. Have a great day.

8.6 Coding schemes

8.6.1 Policy analysis

Code groups	Code names	RvdR2.0	HBGR-19	BGR-25	Total
Ecosystem services	Cultural-history	2	2	0	4
	Diking (embankment construction)	1	1	0	2
	ES floodplains	0	2	0	2
	Freshwater supply	0	2	1	3
	Nature	3	15	0	18
	Riverfunctions	2	33	2	37
	Sediment management	2	14	0	16
	Water drainage	8	19	1	28
Financing	Financing (subsidies, etc.)	1	7	0	8
Governance	Governance	3	12	1	16
	Policy choices	5	20	0	25
	Policy goals	0	11	2	13
	Spatial challenges	14	22	0	36
	Spatial consequences	3	23	0	26
Guidelines activities in floodplains	Activities of secondary importance	3	0	1	4
	Assessment framework for activities	15	7	3	25
	Construction (expansion) possibilities	9	1	2	12
	General conditions for activities	8	0	1	9
	Inland (behind the dike)	8	25	0	33
	Non-river-related activities	13	1	1	15
	Outside the dike	3	6	0	9

	Reluctance to allow new activities	1	0	0	1
	River-related activities	15	2	1	18
	Small or temporary activities	17	1	1	19
Implementation and permits	Implementation strategies	0	4	1	5
	Permits	8	0	3	11
	Route map	0	14	0	14
	Toolkit policies BGR	11	0	3	14
	Traces of RftR2.0	0	18	0	18
	Two-track policy BGR	2	0	0	2
(Inter)national other regulations	Coherence with other policies or processes	3	16	3	22
	Collaborations (inter- and national)	2	18	0	20
	Delta Plan	1	4	0	5
	Environmental Planning Act	1	0	0	1
	PAGW	0	1	0	1
	PlanMER (evaluation)	0	4	0	4
	Water Act	22	2	0	24
	Water Law	3	2	0	5
Plan area	IJssel	0	6	0	6
	Maas	0	11	0	11
	Nederrijn en Lek	2	18	0	20
	Plan area for policies	1	2	1	4
	Rijn	0	16	0	16
	Waal	0	5	0	5
Recreation related opportunities	Brick factories	2	0	1	3
	Case study (Maurik)	5	8	0	13
	Navigation/ mooring docks	9	8	1	18

	Possibilities in floodplains	21	23	3	47
	Recreation	5	10	1	16
	Nature-inclusive recreation	5	4	1	10
	Visitor centres	2	0	1	3
Other opportunities	Agriculture	2	6	0	8
	Economic developments	0	5	0	5
	Energy	5	1	0	6
	Living and working	1	4	0	5
Strategies and vision	Adaptation	0	6	0	6
	Decision-making information	0	5	0	5
	Goal of BGR	4	5	2	11
	Goal of IRM	2	19	0	21
	Greater public interest	2	0	0	2
	Joint benefits opportunities	0	11	0	11
	Mitigation	0	1	0	1
	Opportunities (follow-up and points of attention)	0	11	0	11
	Outlook 2100	0	4	0	4
	Outlook for 2050	0	7	0	7
	Research (follow-up)	2	12	0	14
Urgency	Consequences of a dysfunctional river system	4	23	3	30
	Floodplains	2	17	0	19
	Historical events	0	7	1	8
11	71	265	564	41	867

8.6.2 Interviews small-scale harbours

Code groups	Schepencarrousel	Sociëteitshaven Linden	Stadsblokkenwerf Arnhem	Total
Audience	1	0	1	2
Challenges	2	4	2	8
Financial capital	2	5	2	9
Inspirational capital	5	3	3	11
Management	4	12	3	19
Natural capital	1	1	3	5
Opportunities	5	4	2	11
Social capital	2	6	3	11
8	22	35	19	76

8.6.3 Interviews picking gardens

Code groups	Pluktuin Amstelveen	Pluktuin Bakkum	Pluktuin Stoutenburg	Total
Audience	5	6	2	13
Challenges	5	4	4	13
Financial capital	11	2	5	18
Inspirational capital	4	6	3	13
Management	4	5	3	12
Natural capital	12	5	6	23
Opportunities	4	2	7	13
Social capital	7	3	2	12
8	52	33	32	117

8.6.4 Interviews visitor/ information centres

Code groups	Infocentrum IJssel Den Nul	Bezoekerscentrum De Grote Rivieren Heerewaarden	Utrechts Landschap (bezoekerscentrum de Blauwe Kamer)	Total
Audience	3	1	4	8
Challenges	1	1	2	4
Financial capital	19	6	10	35
Inspirational capital	11	9	13	33
Management	6	3	7	16
Natural capital	4	2	4	10
Opportunities	10	7	13	30
Social capital	7	2	1	10
8	61	31	54	146

8.6.5 Interviews nature-based holiday accommodations

Code groups	VELD foundation	Natuurcamping Oosterbeeks Rijnsoever	Total
Audience	2	1	3
Challenges	4	4	8
Financial capital	5	2	7
Inspirational capital	5	4	9
Management	4	6	10
Natural capital	6	7	13
Opportunities	12	7	19
Social capital	6	2	8
8	44	33	77

8.6.6 Case study Maurik

Code groups	Omgevingsvisie Buren (policy analysis p.99-101)	Gemeente Buren Recreatie, Economie en Toerisme (interview)	Gemeente Buren Riolering en Water (interview)	Bureau Stroming & Stadsblokken - Meinerswijk (interview)	Freek, resident & member Dijkwacht Buren (interview)	Gerard, resident & member Dijkwacht Buren (interview)	Rijkswaterstaat Oost-Nederland (interview)	Total
Audience	2	4	2	0	5	2	0	15
Authorities	3	14	3	1	0	1	19	41
Challenges	4	14	4	10	5	6	7	50
Climate change	0	0	0	1	0	0	0	1
E.V. municipality Buren	0	2	0	0	1	0	0	3
Nature-inclusive recreation	5	5	1	1	1	0	2	15
Intensive recreation	4	2	1	3	2	2	0	14
Involved parties	2	2	2	0	0	0	4	10
Opportunities	5	11	4	21	12	5	12	70
Recreation examples	3	0	1	2	3	0	8	17
11	28	54	18	39	29	16	52	236