PROJECT PROPOSAL

A safe haven in Schiehaven-Noord: Future Proofing with Innovative Climate Solutions for a Sustainable Tomorrow

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1. Introduction and background

1.1. Area description

Schiehaven is a former harbour area located in Delfshaven-Schiemond (Rotterdam, The Netherlands). The harbour was created between 1904 and 1908 and served as the base of Koninklijke Rotterdamsche Lloyd, a shipping company which was based in Schiehaven until the 1980s. It was also the location of the first electrical power plant in Rotterdam, the Schiecentrale, which was operational until the 1990s and has since been converted into a creative hub. Since the 1980s, Schiehaven has been converted from a mainly industrial harbour zone into a mixed residential and commercial zone. Social housing flats were built on the western side of Schiemond, and the Lloyd Multiplein was created, which is mainly used as parking space and as a location for events, such as the yearly funfair. An overview of Schiemond is pictured in Figure 1.

In the present day, Schiemond counts around 5700 residents (Gemeente Rotterdam, 2024a). Delfshaven as well as Schiemond are known for its large ethnical diversity, with almost 70% of the population having a migration background (van Bijsterveld, 2024). The education level and average income tend to be on the lower side, except for Lloydkwartier, which mostly consists of middle- to higher income households and companies in the creative sector.

Figure 1. Overview of Schiemond and its surroundings, including Westzeedijk and part of historical Delfshaven (OpenStreetMap contributors, 2024).

There are several difficulties the local community of Delfshaven-Schiemond and the municipality of Rotterdam are facing. The neighbourhood scores low on perceived safety and quality of life, as well as the quality of the environment. Over the years, many residents have become more distant from the government and municipal institutions, leading to low scores on participation (Gemeente Rotterdam, 2024a). On multiple topics, residents don't feel heard and understood by authorities. Additionally, climate change poses an increasing challenge for the quality of life in the Schiehaven. With heatwaves

and droughts becoming increasingly frequent and flash floods occurring more often, climate change poses a risk to public health and property (IPCC, 2023). Given that vulnerable population groups are overrepresented in Delfshaven-Schiemond, these effects of climate change may hit the area harder than other neighbourhoods in Rotterdam (Gemeente Rotterdam, 2024a).

1.2. Development of Schiehaven Noord

Due to the high housing demand in Rotterdam as well as the rest of the Netherlands, the municipality of Rotterdam aims to build 54.000 houses before the year 2040 (Gemeente Rotterdam, 2024b). Schiehaven-Noord is one of the locations within the city that is suitable to contribute to this goal, as it currently mainly consists of Lloyd Multiplein (Figure 2), a mostly empty square of 10.000 m^2. In 2021, a masterplan for the development of Schiehaven Noord was presented to stakeholders. The concept included drainage of one third of the Schiehaven, to make space for approximately 1000 to 1250 housing units (Bureau B+B Stedebouw en Landschapsarchitectuur & Shift architecture urbanism, 2022). However, the plan was met with resistance from local residents, as they were not included in the creation of the new vision, while participation was already a sensitive issue. Additionally, the plan was not financially viable due to economic setbacks. Because of these reasons, the plan was discarded in December 2022, creating the opportunity to co-create a new vision with the local stakeholders (Zeegers, 2024).

Figure 2. Schiehaven-Noord, the main area of interest (OpenStreetMap contributors, 2024).

As a response to the original masterplan, in 2022 a citizens' initiative created a vision that includes transforming the Lloyd Multiplein into a park: Lloydpark. The initiators argue that the park is necessary to ensure a liveable, green and climate-proof neighbourhood. The citizens' initiative is supported by the district council (*Wijkraad*) of Delfshaven and collected enough signatures to be considered by the municipality (Lloydpark, 2024). However, the plan does not align with the vision of the municipality of Rotterdam, as it does not include housing and poses many technical and financial challenges.

The Opera- and musical theatre group M.A. Intorno, based in Schiehaven, works closely with the local community to ensure the involvement of stakeholders in the development of Schiehaven, by supporting the Lloydpark initiative as well as organizing stakeholder sessions. Therefore, M.A. Intorno acts as a commissioner for this project.

2. Problem Analysis

A citizen-initiative for the redevelopment of the Schiehaven-Noord was presented to the *Commissie Bouwen, Wonen en Buitenruimte* on March 27th at the townhall of Rotterdam. The initiators had collected over a thousand signatures and showed a future vision for the area, widely supported by the community. The initiative tries to realise a green future for the Schiehaven-Noord as the *Lloydpark*, meant as a space for nearby residents to recreate and connect with others. From the presentation and the discussion during the committee meeting, it became clear that there are multiple technical, financial and social challenges to be overcome.

Technical limitations mentioned by the initiative are a limitation to building heights due to a nearby windmill, the Westzeedijk being designated as a water barrier and that the area around the Schiehaven is important for dike protection. Also, there are some areas with potential archaeological value and there are many cables and pipelines in the ground which need to be taken care of, in particular the main heat network (*warmtenet*). In the end, all these limitations would lead to only a very small portion of the area being suitable for housing, meaning the number of 500 houses as whished by the municipality can be regarded as unrealistic. On the other hand, the large fraction of sand in the area's surface may limit possibilities for greening.

During a question round with committee members, the initiators clarified that they can also see a plan with room for other functions in the Schiehaven-Noord area. In fact, they actively encouraged to keep the local fun fair, cultural centre and possibilities for sports, as these are important to nearby residents. It was furthermore mentioned that building on water – i.e. 'floating' houses – is an interesting option to investigate. Regarding the financial aspect, the call was to make an analysis for the longer term. So, looking at the costs, risks and benefits of the project for several generations ahead, rather than only for one or two generations. Finally, it has been stated that citizens and other parties that are involved should be able to actively participate in the project.

Although the municipality is welcoming the idea of greening the area, it also insisting to use the Schiehaven-Noord area for creating at least 500 housing units. Not creating additional housing in the area would not only mean a setback for the solving of the housing crisis, but it would also have a negative financial effect too. The municipality owns (most of) the area, meaning it will have to fund any changes to it when the piece of land isn't sold to project developers. The municipality did say to investigate ways to keep the local fun fair and the sport fields.

The above-mentioned technical challenges, together with the overall need for climate-proof urban areas and the mistrust of residents currently living there towards the municipality, are things this research will need to deal with.

3. Objective

The Schiehaven-Noord area has potential to be one of Rotterdam's most modern, climate-adaptive, and inclusive areas. For that, a balance is required between three components: providing much needed housing, giving inhabitants of the *Lloydkwartier* and *Delfshaven* a place for recreation and relaxation, as well as increasing the overall resilience of Rotterdam city to climate change.

With climate change challenges increasing in severity, the future vision for the Schiehaven-Noord area ought to ensure a liveable and climate-proof environment beyond the year 2050. Worldwide, there are many examples of old traditions, but also new technologies that have adapted cities to local climatological conditions. By finding success stories of climate adaptation and resilient cities elsewhere, we learn about what made these solutions so effective and determine whether we can implement them for the Schiehaven-Noord area.

When analysing the potential effects for the Schiehaven-Noord area, it is crucial to think about the three main goals of this project. The project aims to find ways to create sustainable, climate-proof housing with a focus on natural elements and a great outside environment. The project also aims to search for ways to combine 'living' with 'recreation', identify and integrate the needs and wishes of future recreators in the area. Finally, the project also studies the ways in which proposed developments for the area contribute to making the city of Rotterdam overall more resilient to climate change.

Given that the Schiehaven-Noord area is known for its unique history, location and population in the country, engaging and involving a plurality of stakeholders in the project is key to ensuring that their needs are met and that their concerns are acknowledged and addressed. These stakeholders can be the current inhabitants of the surrounding area, the future residents of the Schiehaven-Noord, potential contractors for the building process and the city of Rotterdam.

Therefore, the main research question for this project is:

"What widely supported climate-proof measures can be implemented in the Schiehaven-Noord to ensure a liveable and resilient future for the area?"

Followed by the sub-research questions:

→ What challenges does climate change pose regarding the liveability and resilience of the Schiehaven-Noord area, and which ones are most important to address?

→ What results from the *Facilitation Session Rotterdam Delfshaven* should be kept in mind during the process of finding possible climate-proof measures?
→ What existing solutions for climate-related challenges are present elsewhere in the world, and what factors, criteria and circumstances made them successful?
→ To what extent is it technically possible to implement these solutions in the Schiehaven-Noord area and what would be the rough financial outcome?
→ How much public support is there for these measures, both from residents as well as other involved stakeholders?

4. Output

The project's final output will be an inspiration report offering an easy-to-understand visual presentation of the ideas and some underlying technical analysis. The desired output will therefore resemble an infographics chart or report, including minimal explanatory texts and complicated language. This would likely include mood boards depicting a palette of visual architectural features that could be selected for redesigning the area. The desired output looks for different possibilities and suitable recommendations, rather than fixating on one outcome. The report's intent is thus to inspire subsequent project stages by the commissioner and landscape architects, as part of a portfolio of options. On top of that, part of the requested output is an (interactive) presentation in simple Dutch, targeted at the citizens of the area. Considering that a majority of the local residents have no or limited background in environmental sciences, as well as considering residents with low literacy rates, it is crucial therefore that our project results are conveyed in a simple, accessible, and understandable manner to the target audience during the presentation.

5. Methods & Activities

To ensure the project' success, a research strategy with specific activities is outlined. Firstly, we will investigate climate change impacts on the liveability of the Schiehaven-Noord area by examining the most impactful weather phenomena for this area. A crucial project component is to analyse and identify the most relevant desires of local residents, to pave the way for a climate-proof future for the area. Moreover, we will thoroughly investigate the level of support that the selected solutions receive from the stakeholders. Drawing inspiration from pre-existing sustainable urban solutions in other cities worldwide will provide valuable insights, and guide in selecting necessary climate adaptation measures. Adaptations' visualisation will serve as a great way to convey recommendations to the stakeholders. Furthermore, a technical analysis of the possible challenges will be conducted for each of the adaptation measures to guarantee that the best solutions were selected.

To gather enough data, we are going to conduct an extensive literature research as well as check various information sources for insights into sustainable and resilient adaptation measures. Additionally, we may try to reach out to architectural agencies and companies holding extensive expertise in climate adaptation, to gain insight into the measures which they implemented in their respective projects. However, obtaining such information may pose a challenge. Through qualitative analysis, we aim to assess the opportunities and challenges that the individual climate adaptations pose. Likewise, similar analysis will be done for the technical aspects of implementing such adaptations in the Schiehaven-Noord area.

One of the most valuable tools for gathering information on climate adaptations are urbangreenbluegrids.com and climateapp.nl websites, as these online resources possess large range of potential adaptation measures and solutions appropriate to our specific needs. Besides we will utilize internet and possibly some computer software to create a collage resembling a mood board with a selection of visualisations depicting various adaptation measures chosen for the redesigning area. Lastly, modelling software could be handy in realising the technical difficulties of implementing the adaptation measures.

6. Project Management

6.1 Management

LogFrame is a project design methodology that provides a systematic structure for identifying, planning and managing projects. It helps to translate the purpose and into concrete activities as well as facilitate project management and foster project performance by identifying key indications from the start. The LogFrame is included as *Appendix A*, which can be referred to in the Appendices at the end of the document.

6.2 Organization & Participants

The project is commissioned by M.A. Intorno and Wageningen Science Shop. The commissioners of the project are Marcel Pleijte (Wageningen Science Shop) and Cor Flach (M.A. Intorno). The project is supervised by Wout Sommerauer, PhD Candidate at Wageningen University, at the department of Earth systems and global change.

The project is carried out by five MSc students from Wageningen University and Research, which will deliver the final report. The students are listed in Table 1.

Table 1. Team members, including study, role and expertise.

Student	MSc Programme	Role	Expertise
Zilin Wang	Climate Studies	-	Environmental humanities, social and political science, languages, soft skills, stakeholder engagement, basic Python coding and modelling, bibliographical referencing with Zotero.
Vladislavs Šingarjovs	Earth & Environment	Secretary	Meteorology, air quality
Jelmer van der Graaff	Climate Studies	-	Data-analysis, Modelling, Meteorology, Climate Change
Anouk van Ginkel	Climate Studies	Project Leader	Human-Environment Interactions: Stakeholder engagement, scenario planning, ecosystem services.
Alieke van der Meer	Climate Studies	Treasurer	Meteorology, Environmental Technology

6.3 Communication

A primary means of communication with the commissioner will be arranged via email. To schedule meetings or provide updates on the project results and progress, requests should be submitted via email. Face-to-face meetings can also be scheduled, but they need to be arranged beforehand via email.

6.4 Time schedule

Table 2. Time schedule divided by the different project phases.

Month	**March**			**April**				**May**					**June**	
Calendar Week	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Phase 1: *Project initation*														
Phase 2: *Project Appraisal*														
Phase 3 : *Project execution*														
Phase 4 : *Project finalization*														

Important Deadlines:

- Friday, May 31st: Submission of draft report to the commissioner. The report will be translated into Dutch.
- Tuesday, June 4th: Final project presentation in Rotterdam. The presentation will be conducted in Dutch, with the option to deliver the same presentation in English.
- Friday, June 7th: Submission of the final report to the commissioner.

Budget

In our project, we did not foresee much spendings as this consultancy project is mostly creative work. Our assumption proved accurate, apart from travel costs from making our way from Wageningen University and Research to Rotterdam on at least three occasions. The first trip took place on the 27th of March 2024 to the city hall of Rotterdam, following an invitation by our commissioner to visit the site in person and to have a tour of Rotterdam city itself. The next occasion will take place on the 30th of April, where we visit the presentation of the other ACT group working on this project. Finally, our presentation will take place the 6th of June. The commissioner offered on his own volition to cover for our transport, such as train tickets, for both going and returning journeys, seeing as how these transits are part of our work for the consultancy. We will also make an additional day trip to Rotterdam to present the final project output to the residents themselves in June 2024. This means that any related expenses related to catering and transport will also be covered by the commissioner.

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Appendix A: LogFrame

Table 3. LogFrame

	Summary	Indicators	Evidence	Assumptions
Goal	Create a sustainable and climate-proof area vision for Schiehaven-Noord.			
Purpose	Ensure livability in the Schiehaven-Noord for future generations with climate-proof measures.			
Outputs	An inspiration report, consisting of a portfolio of possible climate-proof measures that increase livability and resilience, i.e. visualized with a mood board.	The inspiration report is finished by Friday, June 7th.	The report is sent to the commissioner.	
Activities	1. Examine what challenges climate change poses regarding the livability and resilience of the Schiehaven-Noord area. 2. Analyze the needs and wishes of the inhabitants of local residents, and which ones are most relevant for a climate-proof future. 3. Search for existing climate-proof solutions and investigate what made them successful. 4. Analyze the technical and financial possibilities and challenges for implementation of the measures in the Schiehaven-Noord area. 5. Investigate how much support there is for the selected measures from both residents and other stakeholders.	1. The main hazards caused by climate change and its impact on urban environments are researched. 2. A list of needs and wishes from the local residents has been created, and it has been discussed which are most relevant for this project. 3. A number of solutions and factors to success are listed. 4. Based on technical and financial analysis, it can be indicated what solutions are best for the Schiehaven-Noord area. 5. It is discussed why different stakeholders may be against or in favor of these solutions.	For all activities, the data and/or visuals are available in the shared space in Microsoft Teams.	1. - 2. The data of the residents' wishes is representative of the full population. 3. - 4. It is possible to roughly indicate the costs and (public) benefits of the proposed measures. 5. -