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| --- | --- |
| Project management plan  The challenge | Group 6  Luca Eremia (s2322684)  Stefan Grandia (s2587564)  Roel Brinkers (s2383225)  Arend Timmer (s2304236)  Jonne Hanning (s2393794) |

## Project context & Project approach

The frequency and intensity of precipitation events is increasing as a result of climate change (European Union, 2024). The higher intensity results in more stress on the sewage and surface water system throughout Europe. A particular event was the heavy rainfall in July 2024 in the east part of the Netherlands. During this event, highways, neighborhoods and parking garages were flooded in unprecedented amounts. For the city of Enschede this resulted in 50 houses being uninhabitable (NOS, 2024) and the Haaksbergerstraat to be flooded (Vriend, 2024). Besides actions taken by the municipality and fire brigade, the excess water remained for multiple days (Groeneveld, Kodde, & Waning, 2024).

With the expectation that these events will occur more frequently in the future, we want to assess potential solutions to increase the resilience against heavy precipitation events for the Haaksbergerstraat. First, we are going to explore potential solutions and describe where the current bottle necks are. After that, we are going to assess the solutions using a basic hydrological model and field research. A set of solutions is chosen, and a plan is made to implement these solutions. The implementation can be diverse, from convincing people to make their garden greener to advising the municipality to install wadis.

Depending on the stakeholder that we want to address we can make a specific presentation of our findings. For the municipality this might be more technical and for residents of the area it could be a more interesting video or presentation. The key aspect of the presentation phase is to make impact, we think that this cannot be done only with a technical report but by moving the people that are part of the solution.

### Potential solution

|  |  |  |
| --- | --- | --- |
| **Possible solution** | **Effect** | **Notes:** |
| Remove tiles | Increase of infiltration into ground. |  |
| Built green wadis | Increase infiltration, and increase soil storage |  |
| Built infiltration basins underground (Infiltratie krat) | Increase temporal water storage | 2000-3500m3 |
| Use IT-riool | Increase of infiltration into sewage system. |  |
| Encourage green roofing | Temporal infiltration of water on roofs |  |
| Create a ‘Stadsbeek’ | Increase water run off |  |

## Timeline

The team members will have at least one group meeting every week to discuss progress on the current task as well as future assignments. The meeting timeslot will be decided in the previous meeting and will be noted in the group for future reference. Every assignment will have an internal deadline 2 days before the hard deadline so that sloppy last-minute work is not encouraged. A Timetable for the Study Case deadlines as well as the intermediary periods is shown in Table 1.

Table 1: Timetable of the Study Case

|  |  |  |  |
| --- | --- | --- | --- |
| **Week** | **Phase** | **Group Assignment** | **Deadline\Work periods** |
| Week 1 | Engage | Work on group PM plan | Sept 13 – Sept 19 |
| Week 2 | Engage | Submit group PM plan | Friday Sept 20, 13:00 |
| Week 4 | Investigate | Work on Work Case | Sept 23 – Oct 9 |
| Week 5 |
| Week 6 | Investigate | Submit for review group work | Friday Oct 11, 13:00 |
| Week 7 | Act | Work on Challenge solution | Oct 14 – Nov 4 |
| Week 8 | Work on report/repository process |
| Week 9 | Act | Submit report/repository process | Wednesday Nov 6, 13:00 |
| Week 10 | Exam Week | Submit final Challenge solution | Wednesday Nov 6, 13:00 |
| Week 11 | Post course | Submit final Impact Case Study | Monday Nov 18, 13:00 |

## Role division

The role division for the project was based on the personal goals of each team member. The role division and the personal goals of each team member that is related to their role is shown in Table 2.

Table 2: Role division for the project

|  |  |  |
| --- | --- | --- |
| Role | Who | Personal skill related |
| Project leader | Jonne | Managing people |
| Data manager & researcher | Stefan | Deepen knowledge of climate resilience |
| Model Coordinator | Arend | Improve coding and managing people |
| Communication Coordinator | Roel | Communicate with third parties and improve writing skills |
| Researcher | Luca | Deepen knowledge of sustainable infrastructure practices |

# Dealing with repository

To deal with the data repository that will be kept during the project a teams will be used to save all the relevant documents that are made during the course of the project. The data will be organized into the different phases of the project so that the progress made in each phase can clearly be seen. The data manager will make sure all the files are in the correct folders during the project so it is easily accessible.

# References

European Union. (2024, September 19). *Gevolgen van de klimaatverandering*. Retrieved from Climate Action: https://climate.ec.europa.eu/climate-change/consequences-climate-change\_nl

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NOS. (2024, August 2). *Vijftig huizen in Enschede onbewoonbaar door wateroverlast: bewoners krijgen ander huis*. Retrieved from NOS: https://nos.nl/video/2531467-vijftig-huizen-in-enschede-onbewoonbaar-door-wateroverlast-bewoners-krijgen-ander-huis

Vriend, J. (2024, July 21). *Hevige regenval treft Twente opnieuw: A1 onder water en ambulance met patiënt vast in tunnel*. Retrieved from 1twente: https://www.1twente.nl/artikel/4555867/hevige-regenval-treft-twente-opnieuw-autos-en-appartementen-onder-water