Reflection

The starting point of this master thesis was an extreme scenario and the primary question what this extremity would mean for the spatial structure. In small steps the project moves from more fundamental questions (about criticizing the current approach) to a spatial design on city level and neighborhood and finally on design on street scale.

This approach clearly has its limits, since it translates a hypothesis of an extreme scenario to a proposition. A scenario is not without reason one among others. It is very unlikely that this extreme scenario will become reality. By choosing the extreme, the conversation is opened up about the approach towards water management the Netherlands currently have. I emphasize that the proposal will not become like this in reality since the future will change the context we are dealing with. Nevertheless this research and design proposal are valuable as it makes the models that we have shaped about the future more spatial.

The method of GeoDesign has been very useful for assigning suitable relocation areas. The method makes it possible to combine different types of information and link them geospatially. For the higher levels (national/regional/city) this works well, since the data based layers are most important. For the lower scales the social value and atmosphere play a larger role. These type of information is more difficult to assign values to, since they are more subjective. The iterative process where the design gets influenced by other scales combines the top-down approach of the GeoDesign with the bottom-up lower scale information. We could say that the data approach has its limit, for grasping also the human perspective. This needs to be explored using design.

The outcome of the research shows an extreme proposal that deals with an extreme scenario. The adaptivity and uncertainty that come along makes the proposal a strategy rather than a blueprint. Some steps have to made now. Others steps could change over time. We should stop investing in lower grounds, since they will sooner or later flood. The phasing of the project starts therefore with the current situation that makes it already good to relocate the zone 3 area.

There are more fields that need to contribute to conduct knowledge about disciplines that I have no knowledge of. To change the approach as a whole, information is needed from policy makers, hydraulic engineers, social sciences and developers. I tried to use my profession as an urban designer to give an answer on the task we have ahead of us, using my expertise of making figures spatial. Now the discussion could start involving decision makers and experts to start the change of the current system as soon as possible.

Uncertainty

The uncertainty that comes with designing plan for the far future has limits as well as opportunities. The project can make assumptions as long as these are explained. In scenario thinking these uncertainties are plotted in a graph that sets a certain change on the y-axis and time on the x-axis. In this case the ascending line shows us that sea level rise will happen, but the question is when.

For the nearby future the range of sea level rise covers a rather small amount of centimeters, but for the future it shows a large variability. However if we update the range to the current situation this will result that the change for the nearby future always seems to be in a manageable range. Scenarios often describe a lot of trends of different features (for example population growth, sea level rise, precipitation changes). However the combination of these different options are mostly described in words or graphs. The KNMI for example, has four scenarios in order to combine two different features (change in airflows and change in temperature rise). Another graph shows the estimated population growth. In the future these scenarios will not occur separate. They will have an enormous impact on each other, especially in terms of space. For example sea level rise will make less land (especially in delta areas) habitable. Another trend shows that more people will start to live in cities and over two-third of the large cities are positioned in Deltas. In graphs and words the spatial factor that these features need are not taken into account, let alone the uncertainty of the available space in the future.

The phasing of the project shows that it is already necessary to relocate the zone 3 area in the current context. Design decisions can be made in a way that the approach can be adapted to the extreme situation without blocking the other extreme. The method of defining what areas are suitable for settlement show for example that currently there is urbanization on unsustainable grounds. If the scenario would change over time, the suitability maps would change as well. Therefore a buffer is built in and the O-3 meters above NAP cannot be used for densification as well.

My project tries to tackle this spatial aspect by translating the extreme scenario to a spatial design. The boundaries and ranges of the uncertainties of the features are still an estimation. Maybe the future will show that this scenario is not extreme at all. Maybe the “high” scenario will be the lower one in 30 years. Or maybe the future will show that the climate will not change at all as we predicted and a whole new set of variables will come in. Or the lower estimation will become reality.

This project is therefore a statement project, that shows the drastic changes we should start to make already now to be able to deal with the future changes. Even though it is based on an enormous amount of assumptions it is an example of how the adaptive capacity of the Netherlands should change, since the current system will not be able to deal with the extreme scenario.

In the light of this extreme scenario the project could have taken more extreme prerequisites. The 300 year + prognoses show that sea level could rise many meters more. Why would we then invest in a project that is still only 3 meters above sea level? The decision to relocate Rotterdam within the administrative borders of Rotterdam has to do with the public support such a large project should get. There is a reason why the citizens live in Rotterdam. The delta position has also brought trade and harbor life.

The actvity of the harbor is an assumption made and is not discussed enough in the project. The rearrangement of the river system has a large impact on all harbor activities. The harbor is the reason of existence of the city of Rotterdam. If the harbor has to make place for urbanization, maybe the city itself does not need to be on this specific location anymore. However, the project does not express specifically what happens to the harbor. Since the development of densification starts at the east side of the city, it will take time before urbanization of the Maasoost would be necessary. Closing of the Maas could also work whilst keeping the harbor activity (Figure 155).

Figure 155 | Options to keep the harbor partially open within the same proposal. There should be more research about the future of the harbor to define the amount of space needed. Or maybe the harbor can experiment with a new way of floating expansion, move more seaward. [Image by author]
Transparency
One of the reasons that the project location is in the Netherlands is that the Dutch are a leading example in the water management throughout the entire world. Wherein the project is about hydrology and water safety the Dutch are involved. The system we have in the Netherlands is built upon a long history of working with water, shifting from accepting to controlling to manipulating the water.

This last step evolved especially after the big flood of 1953 in the south. However, the approach the Dutch have can be improved as well. Just because the Netherlands is a leading country in terms of water management does not mean their approach is up to date. Slowly we can see that the water is more accepted again (for example in the room by the river) but this change is going very slow. Therefore the Dutch should keep looking for the possible changes of the future and not put their nation at the risk of the current system. The new approach would then be a next step in their water management knowledge that they can exploit to the rest of the world.

The way that this project has looked at suitability in layers has been used before (Ian McHarg method). The combination of linking clusters as a conclusion of these suitability overlay can be applied on other locations as well. It is important to define what layers are critical for the specific project then. The height and soil layer are defining the suitability for the Netherlands very well, since they have the most impact on the risk here. On other locations it would mean that other layers define the clusters. One other remark are the borders that are used. The systems of the region do not stop outside the administrative water board line. The fact that decisions are made within these borders does not mean that those decisions do not influence the area outside of the border. This is an important note for the system scale. The effects of the region scale have to be projected to the system scale. If the approach of the project is transferred to another region, it should also reflect on the higher and lower scales.

To practice
The connection of the project with the practical world is mainly used to use it as a statement. Long-term project thinking is essential when talking about uncertainties. It takes a lot of time to change and transform a system. The scenario thinking makes it possible to look further then the set boundaries that the governmental structure sets. The government can change its course every 4 years (as result of the democratic system). This can be problematic for projects with a larger time scale. Politicians have to answer their voters where the money goes and why they invest in what. Inherent to this it seems less logical to invest in a very long term project since the politicians will not get any benefit from this when the next elections will take place. The case of Room for the river in the Netherlands has been developed under the delta program and has therefore its own board and also a financial system that was no longer part of the national government after the decision was made to invest in this program. In this way the fluctuations of politics and where each cabinet spends its money did not influence the project anymore.

To be able to explain relocating the Randstad financially, the project needs to show the benefits and qualities the new project can provide. Even though the project works throughout scales, a lot more designing needs to be done to show the final island of Rotterdam and the relocated Randstad as a whole. The design of the Region and the city scale are not yet developed spatially. The design starts at the city scale and shows Rotterdam as an example project for the Randstad scale. To be able to see what the effect would be on the entire system more research and design need to be done on the project shows also only two example neighborhoods and how they respond to the city networks. To be able to match the to-be-relocated neighborhoods, a larger variety of interventions need to be tested spatially. Moreover in this phase the visual and graphics of the design are still in process. They are extremely important for the goal of the project (making a statement of change).

The relationship between the theme of the graduation lab and the subject/case study chosen by the student within this framework
The statement project shows a new urban block or a new city system that deals with flood in a different way than the conventional dyke approach. To be able to show the impacts the system needs to be defined. The fact that decisions are made within these borders does not mean that those decisions do not influence the area outside of the border. This is an important note for the system scale. The effects of the region scale have to be projected to the system scale. If the approach of the project is transferred to another region, it should also reflect on the higher and lower scales.

The relationship between the methodical line of approach of the graduation lab and the method chosen by the student in this framework
One of the methods that the research group of Urban fabric use is scenario thinking. Desirable futures can be explored using scenarios. These findings can be translated to designs that support adaptive and prospective environments. Scenarios are a tool to design principles from literature and then translates them to a spatial design. When the principles are made spatial it often shows the need of more research of, for example other fields. The different features and predictions and models come together in the spatial implementation of this uncertainty.

The relationship between the methodical line of approach of the graduation lab and the method chosen by the student in this framework
There is a lot of research about how to deal with (deep) uncertainties. Scenario and probability models show what the possible future could bring us. These models can show the range, probability or options of possible future events. There has been done a lot of research as well on the role of adaptive capacity in dealing with this uncertainty. However, the spatial aspect of this research is often not highlighted. Therefore the project defines design principles from literature and then translates them to a spatial design. When the principles are made spatial it often shows the need of more research of, for example other fields. The different features and predictions and models come together in the spatial implementation of this uncertainty.

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Figure 156 The costs of low project seem extreme. In respect to the long-term the costs are not so extreme. The maintenance of the current approach will only cause more, as a result of climate change and a growing population. There is a point where the two would cross. There needs to be conducted more research about the financial part of the project to estimate this more clear. (Image by author)