IJssel River Flood Risk Management Report - Part 2 Political Reflection

Model-based decision-making

Group 5: Transport Analyst Team

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1. Introduction

As analysts for the transport company, our team did not have a specific agenda with political goals. In that context, what we tried to achieve is to fully satisfy our clients while staying within moral and ethical boundaries (no lying, manipulation, etc.). However, this certainly includes helping them to obtain their desired outcome in terms of policies. We would rather go beyond our initial tasks to help our client achieve a positive compromise than seeing them misuse our data, become an outsider in the process and be overruled with a policy that harms them in the long term.

2. Identified risks of advice usage

Models as policy brokers

There is a risk that the pure numbers of the model are given too much weight in the discussion and they are seen as the only criteria to make a policy decision on. Models are always only a part of a decision-making process, they are valuable support tools that inform politics but not determine policies alone (Saltelli et al., 2020). Models are great in simulating deterministic processes and can also greatly visualize uncertainties. Although computation and data collection/availability has significantly changed over the last decades, one has to acknowledge that models are a simplified representation of reality with all its limitations (Buchanan, 2020). However, policies happen in the real world and that means real people and livelihoods are affected. And reality – especially politics – is messy, with many informal agreements, social norms, trade-offs and compromises in other areas that determine final policy instrument mixes. This is something that can not be included in the modeling itself, but needs to be taken into account when drawing conclusions from model results and synthesizing what this now means for the next steps and the possible policy solution space.

Contested knowledge

Argumenting with numbers and scientific knowledge can actually backfire, as once asked about uncertainties and assumptions, every modeler will have to acknowledge the uncertainties. There is always a way to scrutinize assumptions, sampling, data sources, modeling techniques etc. This can often result in grid lock situations where one party says A and another party says B. There is a risk that our clients on the one hand side use our modeling work to scrutinize policies of opponents e.g., environmental interest group or vice versa - which we have seen in the debates and is described in the academic literature by Sarewitz (2004).

Wicked problem

A typical risk of multi-actor decision-making processes is the uncertainty of the problem, also called wicked problems (Churchman, 1967). Developing a flood risk strategy for the Ijssel River is such a wicked problem. The process involves various stakeholders with different views and priorities about the same issue. During the debates they all struggled to define the problem itself (Rittel and Webber, 1973) and the system (Kwakkel et al., 2016). Another risk is that our clients use the data we provide them to sabotage the decision process so no decision at all is being made - which would be more favorable for them than dikes.

3. Risk mitigation included in analysis

Models as policy brokers

To mitigate the risk of our model and its results being overweight we took several mitigation actions during our analysis. First, as described in our analysis report, we simulated all types of policies to cover a very large space of possible policies and outcomes. Second, we emphasized regularly the limitations of models in general and our model in particular towards the client. Third, we transparently aligned the modeling approach and implementation of the new water level feature with the client - here again stressing the limitations of the model. Fourth, we communicated clearly that the worst case scenarios of dike heightening policies, which our client used to push back on this policy, come with uncertainty and that others can scrutinize these numbers in the same way our client does with theirs.

Contested knowledge

Since there is never zero uncertainty this issue can not really be solved, thus it is important to find common ground and common ranges of input parameters, system boundaries and output variables etc (Sarewitz, 2004). During the end of the first debate there was an attempt to to find this common ground by a digital interface where every stakeholder could upload their models to make them easily comparable and achieve transparency. Unfortunately, several groups did not participate in handing in data, which showed the lack of process control and leadership of Rijkswaterstaat in creating negotiated knowledge.

Wicked problem

As stakeholders of wicked problems often fail to jointly develop a solution due to the overwhelming uncertainty, we tried as analysts to reduce the uncertainty with being a thoughtful sparring partner and our quantitative modeling as described in our other report on analysis. During our first meeting, the transport company came with clear questions around the model. In that context, they asked us to assess whether the heightening of the dikes would be economically beneficial in comparison with the room for the river solution. Furthermore, they wanted us to tell how much the damage would cost in case of flooding.

These questions, and the lack of further communication, resulted in us considering our role as purely data-analysts. But we quickly realized we had to dig deeper and ask the client what is the underlying question they wanted to answer, it took a few critical discussions until we understood it is the threat of disrupted operations caused by too low water levels. Thus, we provided analytical insights in quantifying the impacts of different policies. For this we added a new model result parameter called water level depth.

4. Risk mitigation during decision-making

Models as policy brokers

As analysts, we did not only aim to have a deep understanding of the model, but also to have extensive knowledge about the political context of the debate and the issue in general. To do so, we researched every actor's potential interest and power. This gives insights into how each stakeholder might use the model and their power to achieve their ends. Appendix Table 1 shows this overview, which was translated to a power-interest-matrix. This tool visualizes the complex stakeholder landscape. It further gives insights into how stakeholder interaction in the decision-making would look like. This qualitative method is not perfect, however, it was crucial in order to be able to translate the knowledge gained from the model into political advice that can be effectively implemented in policies. Learnings of this exercise helped our client to better understand the stakeholder landscape and how to interact in it. The main findings were: First, there are two central actors that represent a large part of the spectrum and have the most power: Rijkswaterstraat, and Delta Commission. Then all the dikes as well as the two provinces, who have a high interest in making the right choices for their inhabitants. Finally, the environmental interest group and the transport company have a more special role, with very specific goals they want to reach. These matrices were the foundation of extensive discussions with our client to prepare for the debates. We discussed arguments, which questions they could expect from other stakeholders – mainly ones opposing our clients' goals – and our clients' responses to them.

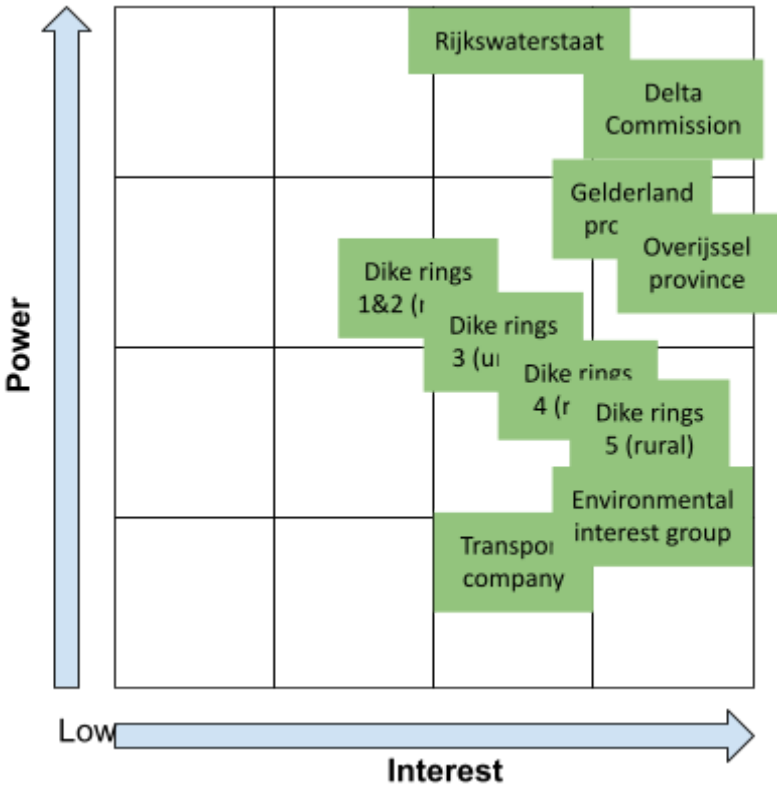

Figure 1: Probable agenda and resources of every actor of the case study

Contested knowledge

We tried to encourage our client to participate in the process of transforming contested knowledge into negotiated knowledge by engaging in the collection and visualization efforts of modeled policies. Unfortunately after the first debate, they were not very open to collaborate with other stakeholders and vice versa. This was due to their aggressive confrontational interaction with the environmental interest group and the Delta Commision, even stating publicly “if we don’t get dikes, we will block room for the river and rather have no agreement at all”. With an attitude like this there is zero chance for creating negotiated knowledge. They also realized that their behavior was counterproductive for their final goal, and they actually were open to listen to our coaching on how to influence with integrity e.g., rather asking the right questions that make opponents admit things that are in favor for the transport companies interests, argument at the right timing with numbers and trying to find allies by echoing joint values like “protecting livelihoods” rather than saying “our economic interests”,

Wicked problem

The transport company involved us more in the formulation of arguments and even asked some members of our team to join them in an informal discussion/debate organized between the preliminary and the final debate. With a view to make our clients happy, we decided to accept this evolution and to become more involved even though our mandate clearly said we could have set some boundaries in our political implication. Another challenge was that after the preliminary debate, some members of our team started underlying what we thought were

mistakes that the transport company made. In the interest of helping the transport company win their case, we had to assess how many comments we should make regarding these mistakes. For example, we expected a more passive role for the transport company, considering what we evaluated their power would be in this debate. We recommended to our client that in the “preliminary policy debate” that they should first observe and see which stakeholders favor which solution. Secondly, we also were very surprised when our client publicly said that in case there is no consensus for dike heightening (their primary goal) they would rather have no change at all and thus not support any policy change. These observations have resulted in a questioning in our team on the extent to which we should advise our clients when we observe what we think is a mistake. We came to the conclusion that it is also in our best interest that we should not only provide modeling support but also give further support and enable our client with what is needed to achieve a solution that protects our clients interest while also including positions of other stakeholder – as otherwise no decision at all would be made.

5. Reflection risk mitigation strategies

With a view to deal with our position of analysts, and in general to deliver on the expectations of our clients, it is crucial for communication to be clear from the start. As analysts, in a context where our clients failed to set clear boundaries to our contribution, it would have been smarter to put the question of our implication in the “political” side of the debate on the table from the start. This change in strategy would have allowed us to be more prepared for the debate and ready to give the advice our clients were expecting from us.

Regardless of our help in the political side of the discussions, it is fair to say that our team still strived to keep a position of honest broker. In that regard, it can be said that our strategy of presenting a large panel of possibilities for the transport company to choose from was sound. That strategy allowed us to remain an attractive partner to public decision makers while assuring the neutrality of our perspective.

An additional tension that arose is whether our implication in the political advice is a risk for us as a company. In the context of a real analyst company, the degree to which we get implicated in political debates should be thought about very carefully, because our role of honest brokers is a point that is also valuable for the image of our company.

References

Buchanan, M. (2020). The limits of a model. *Nature Physics*, *16*(6), 605. https://doi.org/10.1038/s41567-020-0934-5

Churchman, C. W. (1967). “Wicked problems. Guest editorial.” Manage. Sci., 14(4), B141–B142.Kwakkel, J. H., Walker, W. E., & Haasnoot, M. (2016). Coping with the Wickedness of Public Policy Problems: Approaches for Decision Making under Deep Uncertainty. Journal of Water Resources Planning and Management. doi:10.1061/(ASCE)WR.1943-5452.0000626

Rittel, H. W. J., and Webber, M. W. (1973). “Dilemmas in a general theory of planning.” Policy Sci., 4(2), 155–169.

Saltelli, A., Bammer, G., Bruno, I., Charters, E., Di Fiore, M., Didier, E., ... & Vineis, P. (2020). Five ways to ensure that models serve society: a manifesto. doi: 10.1038/d41586-020-01812-9

Sarewitz, D. (2004). How science makes environmental controversies worse. Environmental Science & Policy, 7(5), 385–403. https://doi.org/10.1016/j.envsci.2004.06.001

Appendix

Table 1: Probable agenda and resources of every actor of the case study

Stakeholder	**Interest**	**Power**
Delta Commission	Funded after the horrible flooding in the 1950s the Delta Commissions goal is to avoid any possible risk of deaths. They are interested in long-term solutions which can be adapted to future climate change scenarios.	One of the main political actors in the entire process, thus important voice and high influence on the outcome.
Environmental interest group	Want to protect natural river flow and habitats, and ideally give back space to the river.	Can delay the project with protests e.g., by mobilizing citizens or lawsuits.
Transport company	Aims for higher dikes or no solution at all to secure or improve its business model activities which require a certain water level (not given by room for river and flooding itself).	Direct and indirect jobs and economic activity in the region give them influence on local political decision makers.
Gelderland province	A balanced political agenda between the interest of the rural dike ring 4 and the urban dike ring 5.	One of the main political actors, thus strong influence over the process.
Overijssel province	Assumption same as Gelderland province.	Assumption same as Gelderland province.
Rijkswaterstaat	Aims for the best solution taking into account everyone's needs.	Orchestrates the policy process and proposes policy instrument mix.
Dike rings 1&2 (rural)	Assumption same as dike ring 4, due to being a rural dominated region.	Assumption same as dike ring 4, due to being a rural dominated region.
Dike ring 3 (urban)	Want to protect the livelihoods of their citizens to the best extent.	Urban area voters are important for politicians.
Dike ring 4 (rural)	Rural area with lot of farming, they do not mind flooding from time to time, and rather have more spa	Farmers have a strong lobby on local and national level, dike ring 4 politicians will represent their interests.
Dike ring 5 (urban) - Deventer	Want to protect the livelihoods of their citizens to the best extent.	Urban area voters are important for politicians.