

# IJssel River. Flood Risk Management Report

## Political Reflection

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## **1. Introduction**

From the perspective of Rijkswaterstaat a good policy is a policy that everyone agrees on, and one that is in line with the political preferences of the Delta Commission, meaning it should focus on the long term and safety. So far the proposed policy has managed to comply with all of this, which resulted in a 6 out of 6 vote in favor of the policy. However, the process has only just started. There are multiple challenges and tensions to bear in mind that are associated with the finalization and implementation of similar policies. This short political reflection aims to identify the perspective of Rijkswaterstaat and provide politically salient tools and insights to mitigate these tensions.

First, possible tensions and challenges that may adversely impact how the proposal is used will be introduced, these are based on the characteristics of the policy development process and the role Rijkswaterstaat has in this process. The identification is followed by an explanation of how possible difficulties already have been accounted for during the first part of the process. Next is an introduction of the key points to take into consideration in future strategy development aimed at mitigating the aforementioned tensions and challenges. Lastly, a reflection on the current and future strategies is made. This reflection elaborates on how well key challenges have been and will be tackled in the future.

## **2. Risk identification**

### **2.1 Multi-actor decision-making**

The first identified risk is the uncertainty rooted in a problem where multiple stakeholders are involved. This is typically a characteristic of wicked problems (Churchman, 1967), where multiple disagreements and different points of view around the same issue take place, like defining the system (Kwakkel et al., 2016) or defining the problem itself (Rittel and Webber, 1973).

This first tension should be addressed seriously by the Rijkswaterstaat, since the different actors involved in this problem (Municipalities, transport company, environmental group and the Delta commission) will be aiming at different objectives in the negotiations. This fact may create tensions or even red lines between actors since it is possible that opposing goals exist between actors or conflicting situations where someone's wishes imply another actor's pain.

### **2.2 Don't put all your eggs in one basket**

The approval of the policy during the final debate could lead one to believe that by solely following the proposed measures, the goal of developing a flood risk management plan would be completed. However, as pointed out in the previous paragraph, the IJssel river case in which the decisions have to be taken is complex and it also has a high level of uncertainty. Because of these characteristics, traditional decision-making based on a 'most likely' future with a static or 'robust' plan is not suitable. The reason is that if it turns out that the future is different from the one that was hypothesized, the plan will likely fail (Haasnoot et al., 2013). In order to guarantee safety for the long term, adaptivity is required.

### **2.3 Model as a policy broker**

It is expected that the policy is based on the outcomes from the model. This makes it tempting for Rijkswaterstaat to completely rely on 'what the model says'. Policy-makers must

not put the responsibility on modelers, since their job is to advise and ease learning about a problem and possible solutions, not to dictate the optimal solution (Saltelli et al., 2020). Beyond physical and economical constraints there are political conditions, agreements and constraints between parties that must be considered or anticipated when developing the model and when interpreting its results.

## **2.4 Contested knowledge**

Another considerable risk that is associated with the proposed advice is that actors might question the scientific knowledge on which the policy is based, this can lead to political controversy. The gist of this risk sounds contradictory, but the growth in scientific knowledge that is created to resolve political dissemination might actually feed controversy and gridlock. This is because advocates or opponents of action will use that scientific knowledge or emphasize its uncertainty to advance their value position or interest (Sarewitz, 2004). In addition to this, Sarewitz (2004) argues that scientific inquiry itself is inherently and inevitably subjected to politicization because, among other reasons, researchers are subjected to particular interests and normative frameworks during research. This risk also translates to the actor who chooses to use certain data or assumptions to set up a model, in this case, Rijkswaterstaat.

## **3. Embedded risk management**

### **3.1 Multi-actor decision-making**

To approach an iterative method for building a policy, it is considered important that Rijkswaterstaat is clear and transparent with information and builds close ties with all the actors involved, especially important is to build trust with all the actors.

For this reason, from the beginning, Rijkswaterstaat stated that everybody would have to make compromises. Also, each member of the Rijkswaterstaat group was assigned as a spokesperson to one voting actor and the main arguments and priorities of the actors were collected. With that information, a map of actors was drawn and analyzed to start with an initial sketch for a policy proposal.

On the other hand, the first debate finished with the request from the Rijkswaterstaat to the rest of the actors (excluding the analysts) to come up with a policy proposal and send it to the Rijkswaterstaat. This was used to have the different parties put their demands in writing and to refine the first policy draft into a policy that fits the major interests of the voting parties. Furthermore, having the policy proposal from the Rijkswaterstaat done was compared with everyone's demands to find conflict points and prepare a reply to each one of them (see Annex A).

### **3.2 Don't put all your eggs in one basket**

During the different debates multiple actors emphasized the need for adaptivity to deal with the high uncertainty, their request has been included. As part of the negotiated policy, a group of experts will be formed, the Control Group of Evaluation. This group consists of representatives of all actors. Their main tasks are to monitor, preserve and suggest further interventions and to evaluate the key assumptions and scenarios (that form the basis of the current policy) every five years.

For Rijkswaterstaat the inclusion of the adaptivity measure might intensify their role as the facilitator of the policy-making process. An important thing to keep in mind is that due to the nature of an adaptive approach, future decisions on the practical execution of water management and public works in the IJssel area will always be subjected to debate. Although this generally results in more robust decision making it will require more resources and time to execute projects.

### **3.3 Model as a policy broker**

To analyze the assumptions the code given was revised. One assumption that did not fit the political requirements from the model was the fact that Room for the River (RfR) policy levers is only valid in a binary condition (on/off) and only considered possible to do RfR widening the bed of the river when multiple options are possible in the real world. To assess the quality of the analysis performed, a copy of the code was facilitated to the analysts from the Rijkswaterstaat for them to check it and the results from the model with the levers pulled were sent to all the voting groups before the second debate, providing transparency and allowing them to check if the results obtained were correct.

On the other hand, the results obtained from the model were analyzed from a political perspective, demanding the following criteria to be met: When applying RfR measures, it must exist an equilibrium among the regions, it is not acceptable that the region in the upper part of the river deals with all the responsibility while the lower part enjoys the protection without participating in paying the costs. The regions that provide RfR should be rewarded for giving up their land and protecting their village and the ones after them.

### **3.4 Contested knowledge**

One way to deal with the risk of a gridlock originating from contested knowledge is to make sure that actors share their value positions from the beginning of the process (Sarewitz, 2004). Therefore, it was one of the first steps in the process that Rijkswaterstaat took. As mentioned before in risk 1, efforts were made to understand and collect the value positions of all the voting actors. This also allowed us to explore the available policy options and make sure the solution space was broad enough, i.e. there was something to gain for every actor involved and a consensus was possible (Sarewitz, 2004). This made it attractive for actors to participate and also made the actors responsible for the process. If the process would somehow end up in a grid-lock, they would also miss out on their possible value positions.

## **4. Future considerations in strategy development**

### **4.1 Multi-actor decision-making**

To tackle the problems of the diversity of actors and their goals, the decision-making process should be understood as an argumentative process. Possible solutions have to come after stakeholders and decision-makers debate about the formulation of the problem, how the system works and where the problems come from (Dewulf et al. 2005). For this reason, an iterative approach is needed, where learning about the problem, preferences and trade-offs from the point of view of the different actors is the priority (Herman et al. 2015). Constant communication between the Rijkswaterstaat and the voting actors is key, knowing their pains and possible answers to the possible measures will allow the Rijkswaterstaat to think of

possible answers in discussions and more importantly, this will make it possible to design measures that deal with all the major pains from the actors at the same time.

#### 4.2 Don't put all your eggs in one basket

Although adaptivity has found its way into the final policy it is still rather vague what it would entail in practice. To improve the proposed adaptivity, an overarching framework is advised, namely: Dynamic Adaptive Policy Pathways (Haasnoot et al., 2013) as illustrated in figure 1. This framework gives shape to actions and provides structure to the Control Group of Evaluation. The framework suits the needs of the Control Group because it requires them to develop different types of scenarios, actions and opportunities. These are considered the core tasks of the Control Group according to the policy. Another important benefit is that this approach does not sacrifice decisiveness over future planning, the paradigm rather promotes a combination of short-term action and a strategic vision. This is important for Rijkswaterstaat as they are responsible for the practical execution of projects, the combination of long and short-term action ensures continuity. To create a headstart in terms of adaptive management the Control Group should start designing dynamic adaptive plans from this moment on.



**Figure 1:** The Dynamic Adaptive Policy Pathways approach (Haasnoot et al., 2013)

#### 4.3 Model as a policy broker

The model itself must be taken into account not as a divine truth but as a model that can be biased. Thus, as Saltelli et al. (2020) suggest, assumptions of the model must be revised, simplification sought, and quality should be assessed through transparency and unknowns acknowledged. Furthermore, the results from the models should go through a series of filters where different political conditions must be met. In addition to this, Rijkswaterstaat should prevent more complexity from being added to the model. One possibility to take into account is that the Environmental group suggests adding Biodiversity parameters to the model, this should be avoided. More parameters result in more uncertainty, which can have an uncertainty cascading effect which can result in an error increase up to a point at which predictions become useless (Saltelli et al., 2020).

#### 4.4 Contested knowledge

In the future, many more decision-making rounds are expected to take place because of the adaptive approach that is chosen in the advised policy. In these high uncertainty environments, actors that are fiercely opposing a measure might closely scrutinize any analysis that appears by checking the data, system boundaries and trade-offs. Such a party will usually find sufficient ammunition to question the authority of the analysis. This practice could trigger other parties to provide contradictory reports, possibly igniting a ‘report war’ (De Bruijn & Leijten, 2007). To prevent this from happening, Rijkswaterstaat should establish effective mechanisms for eliciting and adjudicating value disputes in the Control Group (Sarewitz, 2004). By making actors agree on the methods and data used, contested knowledge can be turned into negotiated knowledge on which decisions can be taken.

### 5. Reflection

To reflect on the strategy performed, one could analyze the position of the different actors shown after the first round of the second debate, where all of them expressed their position, and interests and presented modifications to the policy proposal. At this point four out of six actors were convinced by the proposal Rijkswaterstaat presented, only the Transport company and the Gelderland province demanded changes or clarifications to the policy. This means that, before the start of the debate, Rijkswaterstaat already had the required votes to continue. Useful alliances were drawn from the beginning by identifying RfR as a needed measure upstream (and in other parts). This made it clear to the Delta Commission, the Environmental group and the Overijssell municipality that their wishes were considered.

By the end of the final debate, the way to secure adaptivity was not concrete. This might leave actors with their own ideas and expectations of what it will look like in the future. Rijkswaterstaat could have known that adaptivity was going to be a main topic in the debate because of previous discussions. Having a concept for this with the integration of the Dynamic Adaptive Policy Framework would have assured actors this topic was taken seriously and would allow them to agree on the way it should be given shape. The lack of agreed guidelines for adaptivity might oppose a future risk.

By acknowledging the limitations of the model with the RfR lever, a political decision was made to ensure that the transport company agreed on voting in favour of the presented policy. Where different RfR alternatives that would not affect the current water level of the river, would be considered when going into the project details.

For validating the results, some analysts were more useful than others, having to tell them exactly what was required was a handicap that we imposed ourselves. The lack of initiative by some of them should not have been answered by replying to their questions but by demanding an answer to our problem.

To conclude, Rijkswaterstaat’s strategy has led to the successful development of a policy to mitigate the risks of flooding. Future challenges lie in ensuring the collaborative spirit that has been created so far by pro-active steering on the aspects lined out in *Future considerations for strategy development*.

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## **Annex A. Conflict points to policy proposal**

Transport company.

Conflict point: RfR affects their Business

Reply: Not necessarily, depending on how RfR is applied and foremost, floods happening in the river would affect more their business.

Considerations for policy building: When designing the Detailed RfR solutions, only options that do not greatly affect navigability will be considered. Examples are: Floodplain excavation, depoldering, relocation of dikes, Riverbed excavation, water storage, High water channels, lowering breakwater spurs and removal of objects. See figure A1.

Floods also affect business. As you have mentioned in the debate, safety and security is a priority. In fact, it is a necessity for the maintaining good business. Floods need to be avoided by all costs. Not only because human lives are at stake but also due to the lasting consequences it will have on the economy and your business.

Conflict point: Dike heightening is the best option

Reply: Is not a long-term solution, but is a measure to consider along with RfR.

Considerations for policy building: Dike heightening will be considered along the RfR strategy.

Conflict point: The Dutch economy will suffer

Reply: The Dutch economy will suffer more if rural and urban areas get destroyed, the safety of the river is the best strategy to protect the Dutch economy. Flooding will not only have financial consequences, human lives are also at stake. Flooding will leave expensive damage that prevents transporting goods in areas where they need it most. Dutch saying: 'voorkomen is beter dan genezen' which means prevention is the best remedy. Moreover, in Dike 3 a port is expected to be built, we not only support this initiative but we will make everything in our power to make this project happen.

Considerations for policy building: Dike 3 will be protected by dike heightening.

**Delta Commision.**

Conflict point: Sea levels rise should be considered

Reply: Sea levels rising is an important thing to consider, however, there is already a dam between North Holland and Friesland (Afsluitdijk) protecting the IJssel area, see Figure A2. Therefore we consider sea level rise is out of the scope of this debate and the measures taken here. Given the fact that climate change will alter our lives for years to come. However, this suggestion falls outside the scope of this assignment. Although we appreciate the suggestion, the models we use already contain external factors like dynamic weather conditions. We feel like these factors add substantially more to the model.

## **Gelderland.**

Conflict point: RfR will result in a lot of people having to relocate. This will affect people's lives.

Reply: Floods also affect people's lives. We recognize that the policy options that we are introducing are interventive in nature though they do not have to be. Room for the River policies for example could be creatively executed so that people are not affected much by them. Even dike heightenings could be well organized in a way where people do not experience any inconvenience by them.

However, it should be noted that these policies are only there to ultimately protect people from possible floods. That means that the acceptable trade off between safety and discomfort is an easy one to make.

Considerations for policy building: A combination of RfR and dike heightening will be present in the policy proposal.

Conflict point: Trade with Germany will suffer.

Reply: As stated before to the Transport company, we are well aware of the economic importance of the river. Therefore, each project of RfR will be designed taking into consideration the navigability of the river.

Considerations for policy building: When designing the Detailed RfR solutions, only options that do not greatly affect navigability will be considered. Examples are: Floodplain excavation, depoldering, relocation of dikes, Riverbed excavation, water storage, High water channels, lowering breakwater spurs and removal of objects. See figure 2.

Furthermore, the measures proposed have into account the intention of building a port in Zutphen, something that will reinforce the trade and the economy of the region.

Conflict point: Dike 3 is the most affected by deaths and one of the most affected by the possible damage costs

Reply: Although Gelderland did not send us any policy proposal, their dikes did. Dike 3 for example, proposed us RfR in area 0 and in some more (we applied RfR 0 and 1). They also proposed us dike heightening as much as possible, we applied this to them and also set the EWS at 4 days, the most restrictive policy they suggested.

## **Environmental group.**

Conflict point: Biodiversity endangered in areas 3 and 5.

Reply: An entourage will be assigned to monitor biodiversity at a municipality level. Taking into consideration all dikes, not only the ones with dike heightening. They will set a threshold that, if surpassed will trigger a measure to improve biodiversity growth.

Considerations for policy building: A threshold will be defined by a group of experts and the environmental group will be tasked with the measuring biodiversity in the areas where works happen. If the threshold is surpassed, funds will be released to deal with biodiversity loss.

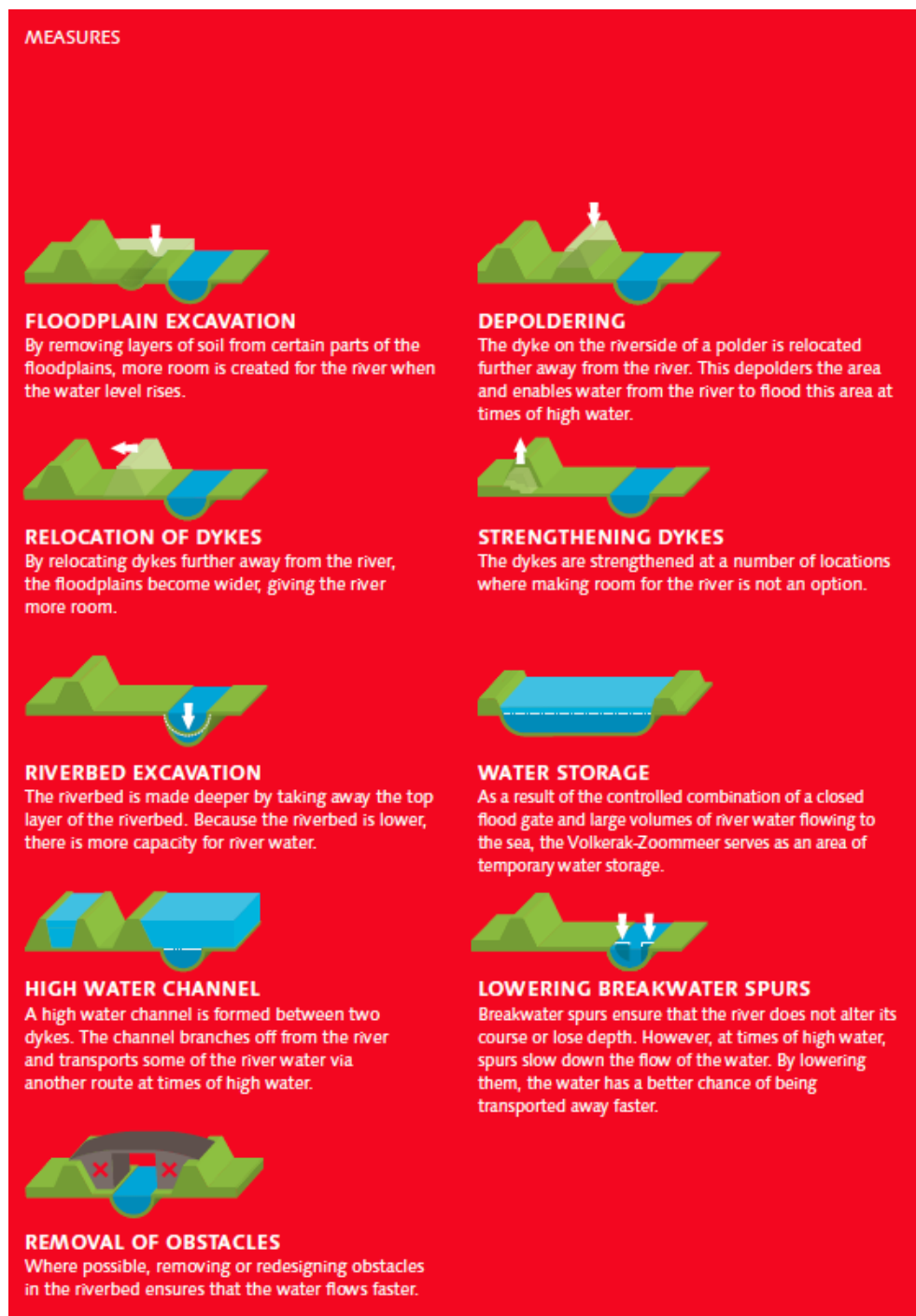


Figure A1 - RfR Different strategies.



Image A2 - Afsluitdijk dam (purple line pointed by the upper arrow) protecting the IJssel area (pointed by the lower arrow)