Political reflection

Model-based decision making EPA141A
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Introduction

Policies are often shaped by both analytical performance and political processes (Cerna, 2013). This was evident in the decision-making process for managing flood risks along the IJssel River, involving various stakeholders with different interests and mandates. During two debates, stakeholders presented and defended policy proposals based on a flood risk model. Eventually, Rijkswaterstaat proposed a final policy, which was approved through a voting process.

This report reflects on the political aspects of the decision-making process, offering insights for future scenarios (Schut et al., 2010). Written from the perspective of analysts hired by Water Board Vallei en Veluwe, it highlights our role in informing them about policy implications. Operating in a politically charged environmnent, our objective is to provide evidence-based analyses without a political agenda, aiding in the political decision-making process.

This reflection outlines the challenges faced, the actions taken to address them, and future strategies to ensure our advice remains impactful. First, we discuss the challenges encountered. Next, we outline the actions taken so far. Then, we explain future plans to mitigate these challenges. Finally, we reflect on our accomplishments and identify additional issues for the future.

Tensions and challenges

To fulfill our mandate, we adopted the approach suggested by Walker et al. (2013), utilizing a simulation model to evaluate policy outcomes in terms of damage, deaths, and costs. However, we faced tensions and challenges in how our proposed advice was used in decision-making.

Complexity of Multi-Actor Decision-Making

One major challenge is the complexity of multi-actor decision-making. Diverse stakeholders, such as municipalities, water boards, dike rings, and environmental groups, each have conflicting interests and objectives. This complexity characterizes 'wicked problems,' where multiple disagreements and differing viewpoints converge (Kwakkel, Walker, & Haasnoot, 2016). For instance, while environmental groups prioritize ecological sustainability and biodiversity, agricultural stakeholders like dike ring 2 focus on land use and economic productivity. These divergent priorities complicate consensus-building. Political strategies must be carefully crafted to achieve the long-term goals of Water Board Vallei en Veluwe regarding flood risk management along the IJssel River (Mintzberg, 1998).

Model Output Variables

The model's available output variables also posed a significant challenge, as they did not account for the environmental impact of different policies. For Water Board Vallei en Veluwe, this meant the absence of variables representing total nitrogen levels in the water or the state of the environment. This limitation made it impossible to quantify the environmental effects of the policies under consideration. Given that the interests of Water Board Vallei en Veluwe are closely tied to environmental outcomes, this was a considerable disadvantage during the debate. The usefulness of any model depends heavily on its context and scope (Ören & Yilmaz, 2006), and the absence of environmental performance indicators compromised the quality of our policy advice.

Framing and Interpretation of Model Outcomes

A major challenge in adopting policy advice for the Room for the River project lies in the framing of outcomes, as decision-makers' preferences are significantly influenced by presentation. Conflicting interests complicate conveying outcomes clearly and understandably to the team.

Interpretation of Model Outcomes

Another key issue is the interpretation of model outcomes, which can lead to conflicting policy preferences among stakeholders. The complexity of water management models allows different actors to use the same results to support opposing arguments based on their interests (Lemons, 1996; Sarewitz, 2004). This tension is closely related to the framing challenge, as the way outcomes are framed influences their interpretation.

Measures already implemented to mitigate tensions and challenges

Below, we outline the specific measures taken to mitigate these issues, linking each measure to the identified challenges.

Complexity of Multi-Actor Decision-Making
Challenge: The involvement of diverse stakeholders such as municipalities, water boards, dike rings and environmental groups, each with their own conflicting interests and objectives, creates a 'wicked problem' where consensus-building is difficult.

Mitigation Measure: Inclusive stakeholder engagement
Enhanced stakeholder engagement is critical. Increasing efforts to involve more diverse groups, including underrepresented communities, can ensure that our policies are inclusive and equitable (Turnhout et al., 2013). What we did was convene with various stakeholders before conducting the analyses to engage in debates. We paid attention to their values and visions and specifically focused on potential points of contention. This approach allowed us to prepare as thoroughly as possible for the complex multi-actor aspect of the problem. This participatory approach helped in creating a more comprehensive and accepted problem definition (Klijn & Teisman, 1991).

Available output variables of the model
Challenge: The model's output variables did not account for environmental impacts, such as

total nitrogen levels or the state of the environment, compromising the quality of our policy advice.

Mitigation Measure: Model enhancement and supplementary analysis
In the short term, we interpret the model outputs in a way we can tell something about the environment. That means we conducted a literature review to establish correlations between the variables in the system and their implications for nitrogen emissions and nitrogen levels within our jurisdiction.

Framing model outcomes
Challenge: Decision-makers' preferences are heavily influenced by how outcomes are framed. Negative framing by upstream stakeholders can lead to resistance against Room for the River measures.

Mitigation strategy: Effective communication and framing

We emphasized transparent and positive framing of model outcomes, highlighting mutual benefits such as improved flood protection and environmental conditions for both upstream and downstream areas (Cairney & Kwiatkowski, 2017). Presenting recommendations in ways that emphasize mutual benefits and address stakeholder concerns is crucial for acceptance. Positive narratives and success stories can demonstrate the effectiveness of proposed measures and aid in gaining wider acceptance (Tversky & Kahneman, 1985). For instance, framing wetland restoration not only as an environmental necessity but also as an opportunity to enhance recreational spaces and boost local economies can appeal to a broader audience. Considering everyone's interests involves discussing the effects of restoration on recreation and the long-term benefits for farmers regarding nitrogen in the soil.

Mitigation approach: Scenario planning

Additionally, employing multiple scenarios can address uncertainties and provide a range of outcomes. Scenario planning, as suggested by Walker et al. (2013), demonstrates how different policy options perform under various conditions. This approach helps stakeholders understand the robustness of proposed measures and shows that their concerns are considered from various perspectives. Presenting these multiple frames can enhance trust and support from different stakeholders, as they see their perspectives and potential impacts thoroughly evaluated and integrated into the planning process.

Interpretation of model outcomes
Challenge: The complexity of the models can lead to different interpretations, resulting in conflicting policy preferences among stakeholders.

Mitigation measure: Clear documentation
Simplified explanations and visual aids were used to make complex model outcomes more understandable (Cairney & Kwiatkowski, 2017). This transparency not only helped in building trust but also ensured that stakeholders were better equipped to interpret the model results accurately.

Remaining Measures to Address Tensions and Challenges

Looking forward, it is crucial to devise effective long-term strategies to tackle these challenges. This approach is consistent with the principles of adaptive management, which stress ongoing monitoring and iterative adjustments to policies (Haasnoot et al., 2013).

Complexity of Multi-Actor Decision-Making
Challenge: The involvement of diverse stakeholders such as municipalities, water boards, dike rings and environmental groups, each with their own conflicting interests and objectives, creates a 'wicked problem' where consensus-building is difficult.

Future Mitigation measure: Establish a Multi-Stakeholder Platform
Create a permanent platform or committee that includes representatives from all relevant stakeholders (municipalities, water boards, dike rings, and environmental groups). This platform would facilitate ongoing dialogue, build trust, and encourage collaborative decision-making.

Available output variables of the model
Challenge: The model's output variables did not account for environmental impacts, such as total nitrogen levels or the state of the environment, compromising the quality of our policy advice.

Mitigation Measure: Enhance Model Development:
Invest in the development and refinement of models to include environmental impact variables such as total nitrogen levels, biodiversity metrics, and other relevant ecological indicators. This will provide a more comprehensive assessment of policy impacts.

Framing model outcomes
Challenge: Decision-makers' preferences are heavily influenced by how outcomes are framed. Negative framing by upstream stakeholders can lead to resistance against Room for the River measures.

Mitigation measure: Open Data Access: Make all data and analyses used in decision-making processes publicly available. Transparency in data allows stakeholders to verify findings and reduces the potential for manipulative framing.

Interpretation of model outcomes
Challenge: The complexity of the models can lead to different interpretations, resulting in conflicting policy preferences among stakeholders.

Mitigation measure: Develop Common Standards:
Collaborate with experts and stakeholders to develop common standards for model design, assumptions, and outputs. These standards should be widely accepted and adhered to in all relevant analyses.

Reflection of our strategy

As analysts at Water Board Vallei en Veluwe, we endeavored to proactively address forthcoming challenges. Reflecting on our mitigation efforts, we are pleased with our inclusive stakeholder engagement, ensuring clarity and consensus. By utilizing multiple scenarios, as advocated by Walker et al. (2013), we effectively managed various uncertainties inherent in policy analysis. Integrating exploratory modeling techniques as described by Bankes (1993) further enhanced the robustness of our outcomes, fostering stakeholder confidence through comprehensive exploration of assumptions and scenarios.

However, challenges arose from the short-term approach to addressing nitrogen variables in our model due to insufficient literature, potentially compromising outcome robustness. As argued by Oreskes et al. (1994), models are simplifications subject to inherent uncertainties, underscoring the need to integrate these variables for improved model accuracy and reliability. We anticipate that incorporating these variables into our long-term plan will bolster the effectiveness of our policy decisions.

Our framing strategies, though well-intentioned, have not fully resolved issues stemming from differing interpretations of the same model. Visualizations, while useful internally, add minimal value in political decision-making and were absent during debates, reflecting ongoing challenges in communication and consensus-building. These persistent issues highlight the complexity of our task.

Despite our comprehensive strategies, several challenges may affect our recommendations:

Evolving political dynamics: Shifting priorities and changes in leadership could impact support for our proposed measures, potentially delaying decisions and leading to missed policy opportunities (Pfeffer, 1992).

Dean and Sharfman (1996) argue that incomplete understanding of environmental constraints due to political behavior may hinder effective decision-making. This risk could result in suboptimal measures being chosen over more effective alternatives, such as Room for River initiatives.

Unforeseen environmental changes: Rapid and unpredictable environmental shifts pose ongoing challenges for flood risk management. Our adaptive management and scenario planning approach will help mitigate these risks, emphasizing the need for ongoing vigilance and flexibility.

Stakeholder fatigue or disengagement: Prolonged engagement processes can lead to stakeholder disengagement, undermining the effectiveness of our participatory approaches. Regularly refreshing engagement strategies and ensuring clear communication with clients are crucial to maintaining stakeholder interest and commitment (Fenton and Griffith, 2020).

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