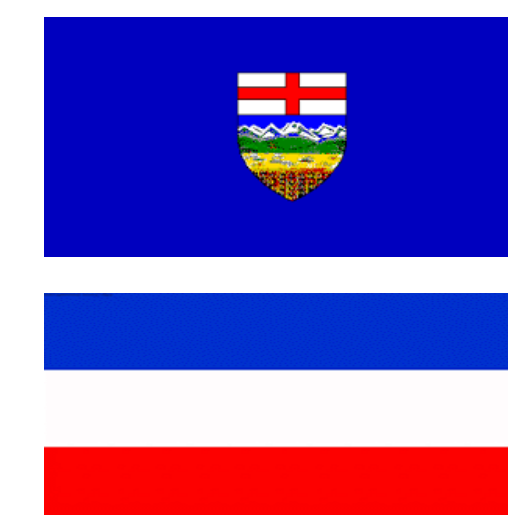




Room for rivers and voices: A comparison of the Room for the River approaches in Alberta and the Netherlands

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ABSTRACT

Historically, both Alberta and the Netherlands have focused on physical infrastructure approaches to flood mitigation. However, following near catastrophic flood risk in the 1990s, the Dutch government developed the *Room-for-River* (RfR) program, breaking from their 1000-year tradition of structural engineering flood defence for 'fighting the water' to 'living with water'. The RfR approach also shifted riverine flood management from a siloed sectoral and technological focus to a multi-disciplinary and spatial focus.

In Alberta, the high cost of the 2013 flood disaster and a growing sensitivity to the implications of climate variability triggered the reassessment of costly structural solutions and exploration of other approaches, leading to three RfR projects in the Town of High River, the Bow River Basin, and the Red Deer River Basin. Unlike transferrable technological change, RfR also requires social innovation through fundamental institutional, governance, and cultural changes, and hence is more challenging to implement.

The purpose of this research is to identify factors for shifting flood management paradigms and practices to adapt the Dutch RfR approach in Alberta at a broader scale beyond the three RfR projects. The transition governance framework is chosen to analyze policies, practices, and stakeholder engagement processes in implementing the RfR approach in both locations based on data collected from interviews, documents, and workshops conducted in Alberta (2015) and in the Netherlands (2017).

METHODS

This comparative case study consists of three projects with qualitative data collected from interviews, workshops, and documents. First, I conducted a case study of the social dimensions of flood risk governance in High River (n=38) in 2015 (primary data), to understand perceptions of, and responses to, flood management in Alberta. The questions cover decision-making processes, public engagement, the role of science, etc. While my research focuses on High River, participants also discussed flood-related issues throughout Alberta and their participation in the other RfR pilot projects.

Second, I conducted interviews (n=12) in the Netherlands in 2017 and asked similar questions for comparison to understand the Dutch approach to riverine flood risk governance. Third, I presented the findings from the first and second projects at three venues and asked participants (n=65) for feedback. These venues included UNESCO-IHE Institute for Water Education (n=14), Wageningen University (n=11) and Delft University of Technology (n= 40). Interviewees and workshop participants included decision-makers and advisors who are representatives of governments, scientific institutions, media, private sector, and NGOs involved in flood risk governance at the municipal, regional, provincial and federal levels. I also examined secondary data from reports and policy documents.

Transition Governance Framework

Governance is the ways in which stakeholders (public, private, non-profit, and hybrid agencies) both interact with, and influence each other, to make and implement decisions to achieve a set of goals. Governance includes all processes and structures of governing such as: interactions, decision-making, norms, rules, instruments, and institutions.

Extensive technical advances have been made in flood management, but to effectively address this wicked problem, better understanding and innovations are also needed in the social dimensions, including coordination of policies and practices as well as collaboration between stakeholders.

Despite growing interest in water and flood risk governance, the literature is limited in scope, fragmented, and lacking systematic comparative analysis. There is a knowledge gap for understanding the key factors for explaining stability and change in flood risk governance.



BACKGROUND

In the Netherlands, the flood scares in 1993 and 1995 triggered a shift in riverine flood management and the Dutch RfR Program (2006-2016) was created consisting of 34 projects. The RfR Program is considered exemplary internationally in terms of administrative cooperation, stakeholder engagement, integrated river management, and being on-time and within budget. In June 2013, Southern Alberta severely flooded, resulting in the first-ever declared state of provincial emergency. The Government of Alberta contracted the Dutch Deltares Research Institute for advice on flood mitigation, including the RfR approach, and also contracted Alberta WaterSMART to facilitate the BRB and RDRB RfR projects.

Table 1. Description of Alberta's Room for the River projects

	High River	Bow River Basin (BRB)	Red Deer River Basin (RDRB)
Purpose	Enhance discharge capacity of Highwood River.	To test whether the RfR philosophy & concepts are applicable.	To ensure that the finding of the BRB RfR project was not an anomaly, to refine the process and include ice jams.
Decision-makers	Government of Alberta and the Town of High River.	Technical Working Group and the BRB Council.	Technical Working Group, RDR Watershed Alliance, and RDR Municipal Users Group.
Stage completed	Removal of 2 neighbourhoods & obstacles Reshaping and maintaining river. Building and strengthening dikes.	Conceptual plans (projects not yet implemented).	Conceptual plans (projects not yet implemented).
Timeline	Removal of neighbourhoods announced Dec. 23, 2013 for Wallaceville & Mar. 14, 2014 for Beachwood.	February 2015.	June 2015.
Public engagement	No public engagement, most buyouts voluntary.	E-mail or comments on website.	E-mails and letters.
Finding	N/A	RfR is applicable in the Bow River basin.	RfR philosophy and concepts are also applicable to other basins.

Based on their involvement in the three RfR projects in Alberta and their knowledge about the RfR program in the Netherlands, what did Albertans value from the Dutch RfR approach?

- Making space for nature
- Collaboration & cooperation
- Public engagement & dialogue

"But in a flood you can, you can get out of the way... We've got to stop... The whole Deltares report, Room for the River, it makes sense. We have to buy into that. We have to embrace that as a community, as a province and country."
— Alberta interviewee (2015)

To address some of these gaps in understanding changes in governance and management practices, Farrelly, Rijke and Brown (2012) developed a transition governance framework to understand operational pathways for change.

Table 2. Operational factors for supporting transition governance

Structure	Process
S1. Narrative, metaphor & image (clear vision, story)	P1. Leadership
S2. Policy & planning frameworks & institutional design	P2. Capacity building & demonstration
S3. Economic justification	P3. Public engagement & behaviour change
S4. Regulatory & compliance agenda	P4. Research & partnerships with policy & practice

Farrelly et al. (2012) found a strong interplay between core governance structures and processes, suggesting there is a need to have all factors aligned for a system-wide transition to be successful.

RESULTS

Structure	Netherlands	Alberta
S1	<ul style="list-style-type: none"> • United goal: "Keep our feet dry." • Flood protection is a state of mind. 	<ul style="list-style-type: none"> • No united goal, varied interests. • Flood-drought cycles = Infrastructure challenges.
S2	<ul style="list-style-type: none"> • Dual objectives: 1. Safety; 2. Spatial quality • "Freedom within borders" = Creative design that adheres to safety standards, budget, & timeline. • More bottom-up approach than in the past. • Budget for flood management separated from political cycle: "Flooding issue is too important to be left to politicians." 	<ul style="list-style-type: none"> • Respecting Our Rivers, not Room for the River, is the main flood mitigation approach – this does not include spatial quality. • More of a top-down approach. • Budget for flood management not divorced from political cycle.
S3	<ul style="list-style-type: none"> • Using national money for local projects is "an offer you can't refuse". • Turn threat into opportunity: NIMBY → PIMBY • Municipalities incorporate local wants/needs, into Blokendoos software program to test scenarios and identify the best option. 	<ul style="list-style-type: none"> • Deltares' report (Feb. 2015) finds Alberta engineering companies' initial recommendations for High River flood diversion and dam expensive & morphologically unsustainable. • "Never has a piece of controversial public policy, like buying out Wallaceville, had a payoff so quickly."
S4	<ul style="list-style-type: none"> • 1995 National government passed regulation to restrict development in floodplains. • Second Delta Committee (2007), Delta Act (2011), Delta Programme. • EU Floods Directive (2007): focus on prevention, protection and preparedness. 	<ul style="list-style-type: none"> • 2012 High River's Council enacted a bylaw to prevent future floodway development, the RfR approach helped enforce these regulations. • 2013 Government of Alberta enacted Bill 27 of the MGA to restrict floodway development in but to date (Mar. 2018) it has not been put into effect.

Process	Netherlands	Alberta
P1	<ul style="list-style-type: none"> • Many visible leaders, including those in executive positions of the Program, national government ministers, municipal government politicians, two farmer chairmen who built trust between farmers and the government and negotiated, and others (see UNESCO, 2015) 	<ul style="list-style-type: none"> • No visible leader or champion for RfR in general, perhaps because the buyouts were controversial. • Mayor of High River supportive of RfR. • Director of Alberta WaterSMART interviewed by the media about RfR in Alberta.
P2	<ul style="list-style-type: none"> • Social and technical learning, share challenges & successes, build relationships, at events & workshops. • "Build RfR community on all levels with high degree of ownership." • Role-playing & simulation games. 	<ul style="list-style-type: none"> • Two conceptual RfR workshops in RDRB and BRB: <ul style="list-style-type: none"> • Water experts (general public not invited); • Technical learning; and • Breadth of topics and perspectives • Participants want more such opportunities.
P3	<ul style="list-style-type: none"> • Slow decisions :2-4 years engagement, 10 years. • Respect for people and acknowledge relocation is hard: \$ compensation, support, & grant wishes. • NL 154 home buyouts → 99% success rate. • Design of meetings: Face-to-face, market atmosphere, kitchen-table talks. 	<ul style="list-style-type: none"> • Quick decisions: within 1 year of flood. • Public not asked about THR buyouts, decision made at municipal and provincial level: \$ compensation. • AB 254 home buyouts offered → 33% success rate. • Design of meetings: Lacked two-way open dialogue about long-term, mostly not face-to-face.
P4	<ul style="list-style-type: none"> • Rivers mapped & tracked. • High Water Risk Campaign: Find out water level risk for each community, post photo on social media . 	<ul style="list-style-type: none"> • Rivers mapped where most densely populated. • Many residents don't understand their flood risks .

CONCLUSION

My research found that Albertans support the RfR approach and want to shift away from mega-infrastructure approaches. The two pilot project studies found that RfR is applicable to other watershed basins. Will this shift happen? This comparative study found that more of the operational factors have aligned for a system-wide transition to facilitate the successful implementation of the RfR Program and projects in the Netherlands than in Alberta. Therefore, in Alberta further transition is not likely to occur while there is considerable misalignment in the factors supporting transition governance.

PhD RESEARCH

I examine perceptions and practices of flood management in the Town of High River, Alberta, the community most impacted by the 2013 Alberta floods. More broadly, I am interested in how diverse sets of values, viewpoints, and interests are deliberated and decided on in a democratic approach to natural resource management and disaster management.

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