

Chapter 4

Experimentalist Regional Governance for Climate Change Adaptation: A Canadian Case Study

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Abstract Climate change is affecting the life, livelihoods and survival of individuals and communities in many parts of the world. Moreover, the uncertainties associated with climate change impacts present an unprecedented challenge for adaptation planning. While climate change projections can be developed on the basis of global information and models, adaptation has to be informed by the knowledge of the communities where the consequences are felt. For the maritime province of New Brunswick there is growing necessity for policy-makers to incorporate adaptation considerations into daily decision-making and policies. The Regional Service Commissions (RSCs) are a new governance arrangement put in place to deliver municipal services, to facilitate regional planning and act as decision-making body on cross-boundary issues. As such, this institution may be a driving force for regional adaptation planning and implementation. This chapter aims to answer the following research questions: How can regional planning facilitate cooperation among municipalities with shared water and infrastructure governance issues? How are regional planners integrating and mobilizing local knowledge into regional adaptation planning? What models of environmental governance could inform the further development of RSCs in the context of climate change adaptation planning? In-depth interviews with RSC directors and planners provided the data, which was analyzed with a grounded theory approach. It was found that RSCs play a leadership role for adaptation planning and some have policies for infrastructural adaptation already in place. Institutional barriers to adaptation such as outdated legislation, centralized provincial power, and lack of a clear mandate were found to be common themes among RSCs. We discuss regional planning in light of experimentalist and co-productive models of environmental governance to address these barriers. While we focus on a case study of adaptation planning in New Brunswick, Canada, the insights derived from this case study and its implications for adaptation governance

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are not limited to this location, but speak to common adaptation planning challenges. In addition to presenting an illustrative case, this article also makes a theoretical contribution to the role of regional organizations in climate change adaptation governance, and understudied focus of climate change adaptation governance (Antonson et al. in *Land Use Policy* 52:297–305, 2016).

Keywords Regional governance • Experimentalism • Knowledge co-production • Coastal communities

Introduction

In recent decades efforts to mitigate carbon dioxide emissions have largely failed, and adapting to climate change impacts has become a pressing issue for policy and decision-makers across the globe (Adger 2003). Adaptation is broadly defined as the ‘adjustment in natural or human systems in response to actual or expected climatic changes or their effects, which moderates harm or exploits beneficial opportunities’ (IPCC 2014). Although adapting to changing climate conditions has been a rule rather than an exception for human societies and how they derive ecosystems services from their environment, the rate and magnitude of anthropogenic climate change threatens to push vulnerable ecosystems towards undesirable future states (Folke et al. 2005). Adaptation therefore is more than a technical issue, rather it should be framed as a dynamic social and institutional problem—a governance challenge—that requires a reconsideration of how we arrange and govern social-ecological systems (Hinkel et al. 2013; Van Nieuwaal et al. 2009). In this sense, adaptation represents a shift in the way societies operate, and so institutional change is necessary for policy processes that enable decisions to be made differently and be informed by newly available knowledge (Dovers and Hezri 2010).

By virtue of being along the Atlantic coast the province of New Brunswick has to tackle adaptation to climate change impacts such as: flooding of low-lying areas, coastal erosion, rising sea levels, saltwater leakage, groundwater contamination, higher prevalence of wildfires, and the appearance of invasive species and new pests (Province of New Brunswick 2014a). To address these issues the province has issued two policy documents: the New Brunswick Climate Action Plan and the New Brunswick Flood Reduction strategy. The express goal of these policies is to include considerations of adaptation into decision-making, integrate adaptation into relevant sectors, and to adapt communities and (current and future) infrastructure to climate change (Province of New Brunswick 2014a). Prior to 2008, the local governance system in New Brunswick had failed to deliver services to smaller communities, which had no methods of facilitating regional cooperation on planning or cross-boundary issues and constituted a significant rural population that had no elected representation (35% of the population) (Finn 2008). In response to this problem, the Regional Service Commissions (RSC) were instituted (in 2008) with the mandate to provide municipal services and facilitate regional collaboration and

planning. Though the mandate does not include adaptation planning, a number of RSCs have taken initiative to integrate adaptation planning into their policies and practices (Province of New Brunswick 2015). This raises a number of questions as to how RSCs are facilitating regional collaboration and whether they are considering climate change in regional planning. Climate change is a global phenomenon manifesting itself at the local and regional level and as such transcends sectoral lines and impacts many aspects of planning and development (Sanchez-Rodriguez 2009). As urban development and land-use planning are generally facilitated at the regional level, it is of interest whether regional planners from RSCs can play a role in adaptation planning. Furthermore, RSCs may be a candidate to facilitate a novel governance approach: experimentalist governance. Experimentalist governance is a multi-scale governance arrangement that draws in multiple stakeholders in a deliberate polycentric decision-making process (Sabel and Zeitlin 2011).

The objective of this chapter is to better understand how RSCs enable regional collaboration and land-use planning and the extent to which climate change adaptation is included in planning and activities. The barriers and enablers RSCs face will be explored within the context of challenges to local level adaptation governance identified within the literature such as (1) conflicting timescales, (2) substantive, strategic and institutional uncertainty, (3) institutional crowdedness and institutional void, (4) institutional fragmentation, (5) lack of awareness and communication, (6) motives and willingness to act, and (7) lack of resources (Biesbroek et al. 2011). In this sense, close analytical attention will be paid to the relationship between knowledge, policy and practice (Dannevig and Aall 2015). Furthermore, the potential for the RSCs to facilitate regional adaptation governance using the theoretical model of experimentalist governance as a potentially useful scaffold is explored. This article builds upon prior research on multi-level adaptation governance (Betsill and Bulkeley 2007; Cashmore and Wejs 2014; Urwin and Jordan 2008; Knieling and Leal Filho 2013) and contributes an experimentalist institutional design perspective to recent studies on regional adaptation governance studies in Australia, Norway, Sweden, Holland and Canada (Jacobs et al. 2016; Dannevig and Aall 2015; Termeer et al. 2011; Cloutier et al. 2015; Antonson et al. 2016; Hanssen et al. 2013).

Research Questions and Case Study Methods

This study aimed to answer the following research questions: How are RSCs planning for and implementing regional adaptation measures? What are barriers to regional adaptation planning? How are RSCs facilitating regional cooperation? How are RSCs integrating and mobilizing knowledge into adaptation planning? Do RSCs have the potential to support an experimentalist governance approach to adaptation?

A qualitative data method was employed to answer these questions and in-depth interviews with RSC Directors comprise the data. Our case study is set within an inductive and interpretive research tradition in social science and humanities

(Gomm et al. 2000) that seeks to generate knowledge from immersion within a particular context. Emphasis is placed on “general fitness” and “transferability” of knowledge gained rather than the ability to generalize through statistical inference (Lincoln and Guba 2000). Efforts were made to draw out themes from interview transcripts, rather than to impose a theoretical framework for analysis.

Local-Level Adaptation Planning

Adaptation strategies are difficult to pinpoint for three overarching reasons: (i) how much adaptation is necessary given uncertainties implicit in changing climate conditions, (ii) how adaptation strategies may be tailored to the particular local context, and (iii) which adaptation actions are best suited within the contextual institutional capacity (Füssel 2007; Dovers and Hezri 2010). The concept of uncertainty pervades discussions of adaptation. This is due to several sources of inherent uncertainty: uncertainty in climate variables and climate impacts (often discussed in probabilistic terms) and uncertainty of context due to variation in local conditions: climate, economic, and social (Adger et al. 2005). While adaptation planning and implementation has largely had a focus at the national scale, the past decade has seen emphasis on locally based adaptation initiatives (IPCC 2014). In addition to the realization that adaptation at the national scale has largely failed to produce tangible adaptation action, findings suggest that the nature of adaptation is inherently “context-specific” (Measham et al. 2011). Local and regional governance systems are therefore the most on-the-ground and appropriate institutions to address these impacts (Sanchez-Rodriguez 2009). Local institutions play critical roles in climate adaptation: mobilizing responses to locally felt impacts, connecting individual and collective responses, and managing the delivery of resources that enable adaptation (Agrawal 2008). Municipal governments are required to provide a number of services and climate change issues are perceived as added burdens on a crowded agenda and limited resources (Crabbé and Robin 2006). Instead “community based environmental planning” (local, bottom-up approach) has been championed as an effective way to deal with environmental problems (Measham et al. 2011). A key dimension of CBEP is integrating different sources of knowledge: local, experiential, traditional and scientific; however, actors with competing interests have made this integration difficult (Measham et al. 2011).

Previous studies have noted the following constraints to local and regional climate adaptation governance, including competing and contradictory agendas at the local level (Storbjörk 2007; Betsill and Bulkeley 2007; Mukheiber et al. 2013); barriers to local knowledge integration in decision-making (Storbjörk 2007; Measham et al. 2011; Lieske et al. 2015); lack of resources and capacities (Sander-Regier et al. 2009; Craft et al. 2013); event-driven and short term policy horizons (Storbjörk 2007; Naess et al. 2005; Measham et al. 2011; Amundsen et al. 2010; Adger et al. 2009, Dannevig et al. 2013) and institutional constraints involving inadequate structures, processes, and distribution of responsibility across

decision-making levels, and a lack in local capacity (Storbjörk 2007; Naess et al. 2005; Measham et al. 2011; Matthews 2013; Amundsen et al. 2010; Adger et al. 2009). From the governance challenges mentioned above, we can identify some of the desired characteristics of a regional climate adaptation governance model: it should reflect the multi-level, polycentric nature of the adaptation problem, and encourage knowledge generation, sharing, and learning from a variety of sources (Emerson and Gerlak 2014; Fossum 2012; Monkelbaan 2015; Knieling and Leal Filho 2013; Cloutier et al. 2015; Hanssen et al. 2013; Dannevig and Aall 2015). Changes to climate occur over timescales of decades (in other words a long-term change) which is difficult to reconcile with the short-term nature of decision-making, policies and political cycles (Adger et al. 2009). As previously mentioned though climate change may be a pressing issue that needs to be addressed, other problems such as economic growth and natural resource development may be perceived to have higher priority on the agenda. As such integrating long-term adaptation planning into new policies may be met with resistance from politicians, policy-makers and citizens (Edvardsson-Bjornberg and Hansson 2011; Hanssen et al. 2013; Antonson et al. 2016; Storbjörk and Hedrén 2011; Nilsson et al. 2012).

Experimentalist Governance

Experimentalist governance is a novel governance model that takes a different approach to the integration of knowledge and decision-making. It has been defined as “a recursive process of provisional goal-setting, and revision based on learning from the comparison of alternative approaches to advancing them in different contexts” (Sabel and Zeitlin 2011). Conceptually it encompasses a multi-scale architecture that brings together multiple stakeholders (public, private) in a polycentric decision-making process. It diverges from the conventional hierarchical model (top-down) but also from the bottom-up approach championed by community-based planning, and advocates for a fluid partnership type governance (or network governance) (Monkelbaan 2015; Sabel and Zeitlin 2011). It is a form of pragmatic and experimenting governance in that assumptions, knowledge and practice are treated with skepticism and doubt such that solutions are viewed as incomplete, and constantly subject to revision (Sabel and Zeitlin 2011). In other words, it advocates the reformulation and readjustment of ends and means through learning from comparison of local efforts to advance a framework of broad goals. In this sense it holds much in common with adaptive governance, as it advances principles of pragmatism and incrementalism (Monkelbaan 2015). It diverges from adaptive governance as it is concerned mainly by producing knowledge through practice and trial-and-error, stemming from decision-makers, rather than tackling the issue of knowledge integration central to adaptive governance regimes (Monkelbaan 2015).

The experimentalist governance architecture sets broad framework goals such as “sustainable agriculture” or “climate adaptation” and incorporates metrics (agreed-upon by multiple stakeholders) to measure success. Lower-level institutions such as civil organizations, regulatory authorities, ministries or municipalities are given wide discretion to achieve agreed-upon goals. These lower-level units must report their performance and participate in a peer-review process in which results from different units are compared. If local units fail to produce results, they are required to make necessary adjustments in consultation with other units. Alternatively, it may involve the redefinition of original goals (Sabel and Zeitlin 2011). In this way goals are revised on the basis of new practices and emerging knowledge. The principles underlying this model are functional rather than structural and as such the realization of this model can take a variety of institutional forms (Overdevest and Zeitlin 2012). One of the virtues of experimentalist governance is that it works as a decentralized structure that accommodates differences in resources and expertise (Fossum 2012). The principles underlying this model are functional rather than structural and as such the realization of this model can take a variety of institutional forms (Overdevest and Zeitlin 2012).

Some of the benefits of experimentalist governance may lend themselves well to the adaptation problem. For one, framework goals are broad such that local units can tailor actions to their particular context. Furthermore, stakeholders and decision-makers take an active role in producing practical and policy-relevant knowledge and therefore facilitate social learning. The polycentric nature of decision-making facilitates a governance arrangement that is transparent, accountable and inclusive, preventing powerful interests from hijacking the process (Monkelbaan 2015). Experimentalist governance may be a useful scaffold to address climate change policy as it depends on strategic uncertainty: the only way to find a solution to a problem is along the process of solving the problem, while the multi-polar nature of the framework prevents any one actor from imposing his particular solution (Overdevest and Zeitlin 2012).

Governance Arrangements in New Brunswick

Canada’s system of government is comprised of three hierarchical levels: federal, provincial, and municipal. The policy framework in which local government operates is largely imposed by higher levels of governance, such as provincial, state and national policies. Municipal authorities have no constitutional standing of their own, they are the delegated agents of the province. The main role of municipalities is to be the provider of services for their constituents. Legislation requires that municipalities provide services such as: police protection, development planning and emergency measures. However in practice municipalities also provide solid waste management, transportation planning, land-use planning, and water management among other services dependent on the resource capacity of the municipality.

In New Brunswick, municipalities are subject to the Department of the Environment and Local Government in New Brunswick. The department oversees and addresses issues within land-use planning and management, zoning development and waste management and ensures that municipalities comply with environmental legislation. New Brunswick has already felt some of the effects of climate change. Warmer temperature trends have resulted in the appearance of invasive species and new pests. Snow and river ice is melting earlier in spring, increasing the risk of ice jams and flooding. Precipitation is projected to increase in frequency and intensity resulting in the flooding of low-lying areas, coastal erosion, saltwater leakage and groundwater contamination (Province of New Brunswick 2014b). The Climate Change Secretariat functions within the Department of the Environmental and Local Government and has a mandate to develop, implement and oversee climate change mitigation and adaptation strategies and policies. The secretariat is required to engage multiple stakeholders and work across provincial departments to mainstream adaptation and to provide provincial leadership on adaptation action.

The province of New Brunswick is also facing a number of challenges to local governance (Conteh 2013a, b). The population is shifting towards urban centers, there is limited population growth (0.1% growth according to 2006 census data), and the population profile shows an aging population trend (Finn 2008). The economic profile of the province is also changing. There is a shift away from a rural natural resource economy to a service-based economy concentrated in urban centers (Finn 2008). These two trends, one of a shifting population and economic profile place strain on the way municipalities deliver services. Some municipalities are facing a declining tax base and must deliver services to a plummeting constituency while urban municipalities are straining to provide services under the influx of rural migrants. In addition, the province is faced with governance challenges: the large number of municipalities and Local Service Districts (LSDs) relative to tax base and population, the mismatch of administrative boundaries with community interest and the lack of elected municipal officials for 35% of the province's population. Created in 1967, LSDs consist of an advisory committee brought together informally (for instance at town hall meetings), designed to act as administrative units serviced directly by the provincial government. Therefore LSDs (comprising a third of the provincial population) do not have an elected council and as such were not intended to act as a legitimate local governance structure. Furthermore, the lack of any governance arrangement to facilitate regional cooperation between communities (such as cost-sharing and regional planning) suggested that changes were needed.

The Regional Service Commissions were created in 2008 to try to address these governance problems. The mandate of the RSC is to:

- Facilitate regional collaboration between municipalities in terms of regional planning and delivery of services such as: land-use planning, solid waste management, policing, and emergency measures
- Develop a strategic regional plan

- Facilitate the planning of environmental protection
- Serve as a forum to deal with issues of regional significance
- Advancing the interests of the region.

The regional service commissions provide a gambit of services to their constituent communities such as land-use planning, solid waste management, regional policing services, emergency management, and stormwater management. These services are prime targets for integrating adaptation or “mainstreaming” adaptation at the local level. The adaptation literature champions local-level government as the best opportunity for adaptation action as they are the scale at which planning and development is most likely to occur and be effective, and also because adaptation action can be tailored to the local context (Agrawal 2008). According to Rauken et al. (2013), the concept of mainstreaming means addressing adaptation in all relevant sectors and coordinating the policies of different sectors across scales of government in a synergistic way. Mainstreaming should therefore incorporate both vertical and horizontal integration (Nunan et al. 2012). There is a need for communication and coordination between local and provincial governments (vertical) and between different sectors and departments (horizontal). In New Brunswick however, for each municipalities to have its own adaptation component to planning is largely not an option. Planning is a major challenge for small communities in rural areas, of which there are many: some RSCs have over 20 LSDs in their area. These smaller communities lack the expertise, funding and information required for adaptation. Although not part of their official mandate, all interviewed RSC have adopted adaptation planning to their agenda, and all RSCs have long-term goals that include adaptation programs.

However, the extent of adaptation varies across the RSCs. For example the Southwest RSC has decided as recently as the summer of 2015 that adaptation planning will be added to their agenda, and that they have interest in beginning to plan (though they are not sure what form it may take). RSC 10 has adaptation strategies lead by the municipalities themselves (with no involvement from the RSC) such as Fredericton’s comprehensive Climate Change Adaptation Strategy, which addresses adaptation in transportation, infrastructure and planning sectors. By contrast, there are two RSCs that have been planning for adaptation for some time; they have adaptation measures integrated into land-use planning. These adaptation measures are integrated in land-use planning and so consist of the writing of zoning bylaws, setting new benchmarks for construction, building permits, and providing development recommendations, so climate vulnerable areas are avoided.

Though not explicitly mandated by the Minister to include adaptation planning within this plan, all RSC have said that they believe their regional plan will have an adaptation component. Apart from one RSC, this regional plan has yet to be realized. In many ways, challenges to regional development planning are synonymous with adaptation planning. Only one out of twelve RSCs has a completed regional development plan in place, which also happens to be the RSC which has a coastal area with infrastructure fully adapted to flooding and storm surges, with

ambitious plans to expand the adaptation implementation in-land and also plan for other facets of adaptation, such as social and economic adjustments for the future. However, all RSCs have expressed profound challenges and difficulties in facilitating the regional development plan. Similarly to regional planning bodies in Sweden and Norway (Antonson et al. 2016; Dannevig and Aall 2015), RSCs can conceptually act as a collaborative entity working with provincial departments (public safety, natural resource management) that proactively mainstream adaptation, and alleviate some of the abject political dimensions of adaptation planning.

What Are Barriers to Regional Adaptation Planning?

For the RSCs challenges to regional adaptation planning comes from a number of sources. A commonly discussed barrier is outdated planning legislation. Planners largely feel that they do not have the tools in place to implement planning and development strategies in a fast-paced modern world. By this planners refer to inadequate legislative powers and authority. Although the goal of the RSC governance arrangement is to initiate a type of institutional change that will allow better planning for the region, old institutions still hold too much sway: adaptation planning in this context suffers from institutional crowdedness. The RSCs are subject to institutions that influence the decision-making process such that adaptation planning is hindered and the process is muddled by: (i) outdated *Community Planning Act* and *Municipalities Act*, (ii) an undemocratic system of representation (LSDs) and (iii) centralized power from Fredericton. According to Measham et al. (2011), a lack of legislative municipal authority is the cause of confusion about roles and responsibilities, uncertain or conflicting goals, and divergent ideas about how the adaptation problem should be solved. Without an infusion of (legislative) power into the RSCs, difficult planning decisions on tradeoffs and adaptation costs cannot be made, and the process will suffer from stagnation.

Another common barrier reported in the literature is policy fragmentation resulting from a lack of collaboration between institutions and policies at different governance levels and geographic and temporal scales (Biesbroek et al. 2011) Such institutional fragmentation is present in New Brunswick— each department (Transportation, Environment and Local Government, Health) pursues its own activities without consultation or integration with one another—even when synergies can lead to a more effective policy outcome (Conteh 2013a, b). One RSC in particular has criticized the provincial government for diluting what the RSC were originally intended to do—fix an outdated and broken local governance structure—to an entity that lacks a clear mandate, does not have the appropriate tools to achieve their mandate and has received no provincial leadership or guidance.

RSCs have also faced a number of hurdles from the municipalities. Essentially they are struggling with (i) the unwillingness of members to consider tradeoffs between climate objectives and development goals, (ii) the politics of regionalization (iii) unqualified Board members and (iv) a lack of public awareness and

policy communication. Mayors are not receptive to regulating development in coastal areas vulnerable to climate impacts when there are short-term economic or political gains available while planners try to produce long-term plans. Although some impacts have manifested themselves already, climate change is largely a long-term issue. It is of no surprise that there is a conflict of timescales between adaptation actions that thoroughly address climate change and conventional policy-making, decision-making, planning, and political cycles (Biesbroek et al. 2011). Some RSCs have voiced frustration over working with Board members that do not have a basic understanding of the planning process. Indeed, political awareness and active community participation is often discussed as a prerequisite for local adaptation initiatives (Foster et al. 2011; Cloutier et al. 2015).

Another major issue is the economic situation of the province. Indeed, according to the Conference Board of Canada New Brunswick ranked last among the provinces on overall economic performance and is only one of two provinces with a per capita income of less than 30,000 US dollars (The Conference Board of Canada 2014). Resource limitation is a barrier to adaptation for New Brunswick: the province is faced with an economic crisis, and municipalities are equally strained in terms of where to allocate funds for an already crowded agenda. However, these findings suggest that the biggest obstacle facing the successful adaptation planning is not a lack of a capacity: resources or expertise, rather it is the translation of existing capacity into adaptation action. Outdated institutions such as the *Municipalities Act*, *Community Planning Act* and the lack of clarity as to the mandates of RSCs (from provincial officials) contribute to an institutional path dependency that prevents effective adaptation. As such, facilitating adaptation requires that these path-dependent institutional arrangements be reformed so that existing latent capacity can translate into tangible adaptation activities.

How Are RSCs Facilitating Regional Cooperation?

Part of the mandate of the RSCs is to facilitate regional cooperation between municipalities. The process consists of representatives from all communities (this includes cities, LSDs and unincorporated areas) in the region coming together and discussing regional plans; decisions are made on the basis of votes cast by Board members. The RSC has effectively brought together multiple stakeholders (municipal representatives and regional planners) and engaged experts (consultants) to bring forward a regional plan. According to Amaru and Chhetri (2013), rural adaptation can be strengthened by participation of relevant actors, considering local contexts, considering sustainability and reducing dependency on external intervention. In a sense, regional cooperation as described by RSCs are demonstrating these characteristics by engaging rural communities in their local contexts and doing so in a self-sufficient manner. However this is not a consistent pattern; there is division as to whether RSCs have been effective in facilitating regional cooperation.

Without cooperative representatives or ministry approval, plans cannot take root, stultifying regional initiatives that do not share broad consensus. Essentially, for plans to take shape, consensus is needed across three levels of governance. Some Board members see the process itself as a threat to municipal autonomy; if the RSCs were to be successful, it may lead to the formation of a regional government to which they would have to answer to. Therefore they are deliberately uncooperative. In contrast, as one planner puts it, some municipalities “*see the need for regionalization and the benefit of well-trained and well-experienced staff*”. In this sense, regional planners employ some of these tools for collaboration yet most have not realized many of the collaborative tools potentially available to them for adaptation planning (e.g. regional status report, organizing information seminars, scenario-based planning) (Wachsmuth 2015).

Do RSCs Have the Potential to Support an Experimentalist Governance Approach to Adaptation?

As of yet, experimentalist governance has not been applied to climate change adaptation planning, mainly it is a transnational governance model employed in the European Union for sectors such as energy, transportation and finance (Sabel 2012). The multi-scalar architecture of this model and the polycentric decision-making process can conceptually lend itself well to addressing a number of the specific barriers to adaptation planning and implementation in New Brunswick. Essentially this model would bring stakeholders together to set broad framework goals and compare their own contextualized plans (and outcomes) to achieve those goals. The stakeholders would then adjust their plans based on what has worked for their peers, or collectively readjust framework goals. Conceptually, this “fluid network” would entail RSCs and municipalities working as peers within this process, collaborating across jurisdictional divides. If the objective was simply set as “adaptation planning” for example, each municipalities or RSC can be free to pursue their own approach to adaptation, while having the benefit of consultation with peers. Furthermore, actors from across scales can be brought into this iterative collaborative process: municipalities, RSCs, and provincial departments. The poly-centric deliberative decision-making process is a feature of experimentalism that may help to address the problem of power relations in the province: between municipalities and RSCs, and the province. As an institutional architecture, our proposal shares some of the design elements of the New South Wales government’s approach to enabling regional adaptation, namely regional capacity building, enhancement of social capital, knowledge dissemination, and research partnerships (Jacobs et al. 2016). However, experimentalist governance arrangements focus less on steering than on supporting local knowledge co-production within an experimental framework.

The experimentalist procedure (applied specifically for adaptation planning) holds no threat to municipal autonomy in the way unilateral regional planning does—a critical factor that has compromised the ability of regional adaptation governance in other countries such as Sweden (Antonson et al. 2016). Theoretically this governance regime can engage the key players in the province together: the climate secretariat, RSCs, municipalities, NGOs and universities. The architecture of this model can be built in multiple settings at different governance scales, or nested within one another across scales (Overdevest and Zeitlin 2012). Therefore, the way this architecture may be conceptually realized in New Brunswick is for provincial departments to collaborate to create one network and for RSCs to create another, with interpenetration between the two. More specifically, the experimentalism for adaptation in New Brunswick may be realized similar to the experimentalist regime created by the Food Safety Modernization Act of 2011 (FSMA). The FSMA requires factories to identify, monitor and manage all areas within the food production process vulnerable to contamination, with the Food Drug Administration periodically inspecting licensed factories (Sabel 2012). If the performance of factories lag behind that of their peers, the frequency of inspections increases, and the facility must reanalyze its risk management plan (Sabel 2012). This method can theoretically translate to adaptation planning within the current New Brunswick governance system.

In this model RSCs can act as autonomous actors perusing the goal of adaptation planning, periodically measuring performance in relation to their peers. The Climate Secretariat could act as the regulatory body, inspecting progress and requesting revision and reformation of adaptation planning that is not meeting peer-established “performance standards”. Furthermore, NGOs as well as relevant provincial government departments can be included within this framework as the experimentalist framework does not differentiate between public and private stakeholders (Fossum 2012). The benefit of taking a nested approach, in which provincial departments and RSCs collaborate to make policies together, is that there is the latent potential for mainstreaming adaptation efficiently. Indeed, Sabel and Zeitlin (2011) have defined experimentalism as a “machine for learning from diversity”. The decentralized structure of experimental governance allows for tensions between actors to diffuse, as there is no overarching authority. If the power struggle between municipalities and RSCs (which clogs the process of decision-making) is relieved, it may smooth the progress towards a regional development plan. In addition, another characteristics of municipalities in New Brunswick is the large difference in resources and expertise (adaptive capacity). The experimental architecture is intended to produce results in circumstances where capacity is low. The RSCs themselves can participate in their own cycle of deliberation, setting framework goals such as “regional adaptation planning”, and comparing and readjusting results.

Nonetheless, there is the question of feasibility: how would these actors be brought together? Given the collaborative nature of experimentalist governance, what would provide the impetus for actors to converge and sustain cooperation without sanctions or mandates remains ambiguous (Fossum 2012). Furthermore, as

a province facing financial difficulties and a shifting economy, the political climate may not be favorable to a governance structure dependent on experimenting with policies. Another limitation of this model is its reliance on shared constitutional principles (Fossum 2012). There remains the inherent problem of actors that do not acknowledge adaptation planning as a shared goal preferring instead to pursue vested interests (Antonson et al. 2016). Cultural elements may be a root cause of divergent principles and views from stakeholders within the adaptation process. Indeed, cultural factors—for example differences between Anglophone or predominantly Francophone communities—may be responsible for the disparity in adaptation planning across the RSCs.

Conclusion

RSCs are collaborative decision-making bodies with the potential to facilitate adaptation planning in the region as they have: (i) had some success with regional development planning (one RSC has a regional plan), (ii) integrated climate knowledge into policy (for two RSCs) and (iii) implemented adaptation across municipal boundaries (two RSCs). However, RSCs have qualified their successes as there are many problems to be solved and many challenges ahead. Outdated planning legislation, vague leadership from the province as to the mandate and responsibilities of RSCs, centralized provincial power, and an undemocratic election process (lack of democratic representation for LSDs) are institutional barriers to adaptation. In addition the decision-making process is stultified by conflict between municipalities and RSCs. From the perspective of the RSCs, municipalities often look out for their own economic interests (ergo refusing to make tradeoffs to address climate vulnerabilities) and favor short-term (economic) gain over long-term benefits to resilience. These results offer additional insights on the conflict between local and regional levels of decision-making in adaptation planning (Storbjörk and Hedrén 2011; Nilsson et al. 2012; Antonson et al. 2016).

Experimentalist governance as a polycentric deliberate decision-making process that operates across scales may rectify some issues, and have merits for adaptation planning. The decentralized structure may alleviate problems and impasses (to decision-making) caused by power struggles between municipalities and RSCs, as well as the RSCs and the province. This approach has some affinities with the ‘boundary work’ that enables a ‘hybrid management space’ advocated for regional adaptation governance in Norway (Dannevig and Aall 2015), as it can enable the functions of knowledge translation, mediation and communication by facilitating the tailoring of responses to climate change from municipalities within their respective adaptive capacities. Yet, it is recommended that strong provincial leadership may play a key role in adaptation policy and in the future of RSCs. Many RSCs feel that the province has been ambiguous in terms of what the mandate of the RSCs should extend to and whether regionalization should be discouraged or embraced. The provincial Departments of Health, Safety and Transportation should

collaborate closely with the RSCs or delegate respective powers for regional planning: the RSC need to be empowered to take a multi-scaled approach to adaptation planning. The regional development plan may represent a vital policy instrument to initiate the kind of change required for effective adaptation planning (Antonson et al. 2016). As RSCs begin to formulate regional development plans future research should explore the way adaptation planning is integrated, and the factors that hinder or enable the process.

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