A Case for Good Governance and Regulation in Sea Level Rise Adaptation

Regulatory Barriers to Implementing Nature-Based Solutions Along the South Coast of B.C.

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Introduction

This report outlines regulatory barriers that exist in implementing nature-based solutions to flooding along the South Coast of B.C. Part I provides background information about flood governance in the province, including an analysis of nature-based solutions and their place within B.C.'s flood governance model. Part II describes some laws that make up a portion of the regulatory landscape applicable to flood protection in B.C. Part III outlines regulatory barriers to implementing nature-based solutions in B.C.

Methods

This report was compiled using data gleaned from qualitative research methods, including a literature review and semi-structured interviews. Ten interviews were conducted. Interview participants were chosen with the snowball method. Interview participants were informed that the object of the study was to investigate regulatory barriers to implementing nature-based solutions along the South Coast of B.C. Data gleaned from interviews was interpreted by organizing information according to theme.

Part I

Governance – Broadly

Governance is a system by which society organizes itself and gives power to various actors to make decisions, including how those actors make their decisions and whose interests are considered in decision-making (ebbwater 9). Governance frameworks can be shaped by dominant worldviews about the things that they govern. In terms of land and water – i.e., nature – the Municipal Natural Assets Initiative indicated that B.C. governance tends to rely on the worldview that nature is property (MNAI ii). B.C.'s regulatory framework, including its laws, tends to reflect the view that nature is property. This worldview underpinning B.C.'s laws is different than First Nations communities, which view nature as "related and equally important as human beings." (MNAI ii).

B.C. Governance of Flood Strategy - General

B.C.'s flood strategy governance approach is polycentric (ebbwater 2), spreading the responsibility for flood management across the federal, provincial, municipal governments along with First Nations communities and the private sector. Within the private sector, insurance companies play an explicit role in supporting risk management (ebbwater 2). These various stakeholders may align in motivation to manage flood risk (for example, private sector actors and government may both be interested in the financial benefits of flood risk management). Conversely, they may diverge in interest.

Flood risk governance can be proactive, reactive, or both. An overly reactive approach does not adequately address resilience and reduction of flood risk prior to a flooding event (ebbwater 12). A proactive approach is identified importantly as a more economical and less ecologically disruptive one than a reactive approach (Arlington 10). In terms of resilience, Canada's flood governance framework is heavily reliant on resistance-based strategies like dikes and dams that are unsustainable (ebbwater 12). Because flood risk is ever present and growing with the acceleration of climate change, and reduction of flooding is extremely difficult and complex, if B.C. is going to continue working with dikes to deal with flooding, it is increasingly important that governance articulates flood resilience and recovery (ebbwater 12).

In B.C., dikes are a particularly popular resistance-based mechanism to deal with flooding. Dike implementation, improvement, and management are regulated by the provincial *Dike Maintenance Act* (BC Gov Flood 5), but there is a constellation of laws governing the implementation and maintenance of dikes (BC Gov Flood 9).

There is no specific law dealing with the implementation of nature-based solutions for flooding in B.C., although these sorts of solutions are increasingly gaining popularity. The United Nations' Sendai Framework for Disaster Risk Reduction and its adoption in B.C.'s Flood Strategy policy, entitled *From Flood Risk to Resilience: a B.C. Flood Strategy to 2035* ("the B.C. Flood Strategy") reflects the shift towards nature-based solutions as increasing flood resilience.[1] As a preliminary and necessary matter, the B.C. Flood Strategy noted the importance of inclusion of First Nations in shared governance through incorporation of First Nations peoples' knowledge is "integral for the province to lead as a regulator and a provincial knowledge hub" (BC Gov Flood 11).

Nature-Based Solutions and Flooding Strategy

Nature-based solutions can be used to respond to rising sea levels and floods, including dike structures made from naturally, already existent ecology (SNC-Lavalin i). The Living Dike project along Boundary Bay is one example of a nature-based solution in which salt marshes are created from sand to complement and protect already existent hard dike structures along the shoreline (SNC-Lavalin ii). Nature-based solutions in the flood strategy context preserve the natural ecology of the shoreline, protect hard structures like dikes from erosion, and minimize damage to the local environment including the community values of First Nations people (Stewardship Information Sheet 2). The creation of typical dike structures can damage local ecology (SNC-Lavalin). Most importantly, however, the damage and subsequent loss of local ecology, including, for example, tidal marsh, can exacerbate flooding, allowing large coastal waves to erode the hard dike structure (SNC-Lavalin 4). As a result, it is important to not only have hard stabilization, but soft stabilization, such as living shorelines or living dikes, that can absorb water from storm surges and strong waves (Arlington 83). More importantly, it is important to explicitly include nature-based solutions in B.C.'s regulatory framework to ensure that they are adequately funded, appropriately monitored, and sustainably implemented. Governments that have enacted legislation including nature-based solutions appear to have at least foregrounded the concept of nature regeneration as opposed to just damage reduction (MNAI 35).

In Maryland, the government has acknowledged the need to include soft stabilization structures such as living shorelines to deal with flooding and to consider these measures before considering more hard stabilization structures (Arlington 83). As a result, in 2008, Maryland enacted the *Living Shoreline Protection Act* (Arlington 83). The *LSPA,* as described by the Maryland Department of Natural Resources, allows for the use of natural ecological components in combination with sand and/or marsh plantings, to protect, restore, enhance, or create natural shoreline habitat to minimize coastal erosion (Subramanian 11). The *LSPA* provides that "improvements to protect a person's property against erosion shall consist of non-structural shoreline stabilization measures except where the person can demonstrate such measures are not feasible, or where mapping indicates areas that have been deemed appropriate for structural shoreline stabilization measures" (Subramanian 51). According to the Chesapeake Bay Foundation, the U.S. Army Corps of Engineers has put in place a streamlined permit process where a person wishes to alter a shoreline in tidal areas or wetlands including through the removal of vegetation and introducing fill materials (Living Shorelines 8). Maryland has developed a variety of funding opportunities including grants, loans, and cost-sharing programs for which local governments may apply to fund living shoreline projects (Living Shorelines 10).

Part II: B.C.'s Flood Strategy – Regulatory Framework

Laws

B.C.'s flood governance framework is regulated through legislation and guidelines. Since Canada is a federalist country, certain responsibilities belong to the federal government, while others are given to the provincial government of B.C. pursuant to the *Constitution Act*. The foreshore lands of B.C. are owned by the provincial government (Nowlan 8). Municipal governments also play a role in regulating the environment where nature-based solutions may be implemented, but they are only able to do so because powers are delegated to them by either the provincial or federal government via the *Municipal Act* (Nowlan 9).

Legislation can be federal (i.e. the *Fisheries Act* and the *Indian Act*), provincial (i.e. the *Professional Governance Act,* the *Declaration on the Rights of Indigenous Peoples Act,* and the *Local Government Act*), or municipal (i.e. the *Official Community Plan Bylaw, Zoning Bylaw,* and *Flood Bylaw*). Legislation that governs the implementation of flood strategies, including nature-based solutions, comes from all three of these areas. There are therefore significant overlaps between pieces of legislation and gaps where much is needed to secure regulation of flood strategy involving the implementation of nature-based solutions that enables, rather than limits, the abilities of local governments to implement diking solutions to flooding with enough funding from their provincial government counterparts.

Relevant Provincial Legislation

- *DRIPA*[i]
  - Section 2(c) states that a purpose of DRIPA is to support the affirmation of, and develop relationships with, Indigenous governing bodies.
  - Section 3 provides that in consultation and cooperation with Indigenous peoples in British Columbia, the government must take all measures necessary to ensure the laws of British Columbia are consistent with UNDRIP.
  - Section 4 provides the need for an action plan to achieve the objectives of UNDRIP and provides for some requirements of that action plan.
  - Section 7 provides that the Lieutenant Governor in Council may authorize a member of the Executive Council on behalf of the government to negotiate and enter into an agreement with an Indigenous governing body relating to one or both of: the exercise of a statutory power of decision jointly by the Indigenous governing body and the B.C. government or another decisionmaker; and the consent of the Indigenous governing body before the exercise of a statutory power of decision

- *Local Government Act*[ii]
  - section 903 provides that local municipalities can divide the land and regulate the use of it.
  - Section 910 of the *Local Government Act* provides that a local government may designate any area a flood plain where that government considers a flood may occur on land
  - B.C. has the Development Permit, which is unique to the province. A DPA may specify areas that must remain free of development. Any local government can establish a DPA under section 919.1 of the *Local Government Act* – where one exists, no construction or development of the land can happen unless a Development Permit has been issued by the local government.
  - Division 4 provides for Official Community Plans. Section 471 defines the purposes of OCPs as "a statement of objectives and policies to guide decisions on planning and land use management."
  - Section 473(1) provides that an OCP must include statements and map designations for the area covered by the plan respecting the approximate location of sand deposits that are suitable for future sand and gravel extraction; and restriction on the use of land that is subject to hazardous conditions or that is environmentally sensitive to development.
  - Section 474 provides that an OCP may include "(d) policies of the local government relating to the preservation, protection, restoration and enhancement of the natural environment, its ecosystems and biological diversity."
  - Section 479 deals with zoning bylaws, providing that a local government may, by bylaw, regulate the use of land.
  - Section 489 provides that, if a OCP designates a development permit area for the protection of the natural environment, its ecosystems and biological diversity

and/or the protection of development for hazardous conditions, an owner must obtain a development permit to obtain variance of the zoning bylaw.
  - Section 524 deals with requirements in relation to flood plain areas. Subsection (2) provides that a local government may, by bylaw, designate land as a flood plain where it is considered that flooding may occur on the land.

- *Land Title Act*[iii]
  - provides that an Approving Officer may refuse to approve a plan for subdivision if the land is at risk to hazards such as flooding or erosion.
  - Section 86 of the *Land Title Act* provides that an Approving Officer may require a report from a qualified professional that the land may be used safely.
  - Section 219 of the *Land Title Act* provides that the report is included in a covenant and registered on title and remains on the title of any parcel created by the subdivision, regardless of future ownership.

- *Water Act*[iv]
  - Section 9 provides that an approval in writing may be granted by the comptroller, a regional water manager, or an engineer authorizing a person, agent of the Crown, or a municipality to make changes in and about a stream.

- *Dike Maintenance Act*[v]
  - Section 2(4) provides that constructing a new dike must be done only either with the prior written approval of the inspector of dikes or in accordance with regulations made under section 8(2).
  - Section 2(5) states that the inspector must consider, in granting approval to create a dike, the appropriateness of a standard established by regulation under section 8(2) in relation to the dike that is the subject of the request.
  - Section 8(2) states that the Lieutenant Governor in Council may make regulations referred to in section 41 of the *Interpretation Act.* Such regulations may include standards of construction, operation, and maintenance of dikes and creating a trust funds that payments can be made out of as long as the purpose or objective of payment is promotion of proper dike construction, maintenance, or operation or protection or restoration of the environment from or as a result of flooding.
  - Section 8(3)(a) provides for “different classes of dikes” which could be subject to different provisions according to regulations made under subsection 2(a).

- *Environmental Assessment Act*[vi]
  - Section 6(1) provides that a person must not undertake or carry on any activity that is a reviewable project unless that person first obtains an environmental assessment certificate or has been issued an exemption order.
  - Section 19(1) provides that before making a process order, the chief executive assessment officer must seek to achieve, with respect to the order, consensus with participating Indigenous nations.
  - Section 25(1) provides that the effects of a project on Indigenous nations and rights recognized and affirmed by the *Constitution Act* must be assessed in every assessment.

- Section 29(2) provides that a referral of the proponent's revised application for an environmental assessment certificate must be made to the ministers for a decision whether the project can proceed.
- Part 7 of the *Act* provides for compliance and enforcement measures, including that an officer may enter at any reasonable time on the property that is the site of a project to inspect it, take samples from it, take photographs, etc.

- *Riparian Areas Protection Act*[vii]
  - Section 12(1) provides that the Lieutenant Governor in Council may, by regulation, establish directives regarding the protection and enhancement of riparian areas that he/she considers may be subject to residential, commercial or industrial development.
  - Section 12(4) provides that if a directive applies, a local government must include in its zoning and land use bylaws riparian area protection provisions in accordance with the directive.

- *Heritage Conservation Act*[viii]
  - Section 2 provides that the purpose of the *Act* is to encourage and facilitate protection and conservation of heritage property in B.C.
  - Section 4(1) provides that the Province may enter into a formal agreement with a first nation with respect to conservation and protection of heritage objects that represent the cultural heritage of the Aboriginal[ix] people who are represented by that first nation.
  - Section 8 provides that no provision of the *Act* and no provision in an agreement entered into under section 4 abrogates or derogates from the aboriginal and treaty rights of a first nation or of any aboriginal peoples
  - Section 8.1 provides that if a treaty nation makes laws for the conservations and protection of, and access to, heritage sites and objects on its treaty lands pursuant to a final agreement, other sections of the *Act* do not apply in relation to those treaty lands
  - Section 12 deals with permits that allow inspections or removal/attempts to remove heritage objects or damaging, desecrating, or altering protected heritage sites. These permits can be granted by the Lieutenant Governor in Council (there is a lot of power vested in the minister by this legislation despite many of the objects/sites dealing with First Nations people)

Relevant Federal Legislation

- *Indian Act*[x]
  - Section 18 (1) provides that subject to this Act, reserves are held by Her Majesty for the use and benefit of the respective bands for which they were set apart, and subject to this Act and to the terms of any treaty or surrender, the Governor in Council may determine whether any purpose for which lands in a reserve are used or are to be used is for the use and benefit of the band.
  - Section 35(1) provides that where by an Act of Parliament or a provincial legislature Her Majesty in right of a province, a municipal or local authority or a

corporation is empowered to take or to use lands or any interest therein without the consent of the owner, the power may, with the consent of the Governor in Council and subject to any terms that may be prescribed by the Governor in Council, be exercised in relation to lands in a reserve or any interest therein.
  - Section 60 (1) provides that the Governor in Council may at the request of a band grant to the band the right to exercise such control and management over lands in the reserve occupied by that band as the Governor in Council considers desirable. Section (2) provides that (2) The Governor in Council may at any time withdraw from a band a right conferred on the band under subsection (1).

- *Fisheries Act*[xi]
  - section 2.3 of the *Act* states that the *Act* is to be construed as upholding the rights of Indigenous peoples recognized and affirmed by section 35 of the *Constitution Act, 1982* and not as abrogating or derogating from them. Section 2.3 states that the Minister of Fisheries and Oceans shall consider any adverse effects that the decision may have on the rights of the Indigenous peoples of Canada.
  - Section 2.5 states that when making a decision under the *Act*, the minister may consider (not must) "Indigenous knowledge of the Indigenous peoples of Canada that has been provided to the Minister."
  - Section 34.4(1) prohibits the carrying on of a work, undertaking or activity, other than fishing, that results in the death of fish.
  - Section 34.2(1) provides that the Minister may establish standards and codes of practice for the avoidance of death to fish and harmful alteration, disruption or destruction of fish habitats and the conservation and protection of fish or fish habitat. The Minister *may* consult with any provincial government or Indigenous governing body before establishing these standards.
  - Section 34.4(2)(b) and section 35(2)(b) provide that the Minister of Fisheries and Oceans may issue an authorization with any terms and conditions in relation to a proposed work, undertaking or activity that may result in the death of fish or the harmful alteration, disruption or destruction of fish habitat.

- *Constitution Act 1982*[xii]
  - Section 35 provides that the existing aboriginal and treaty rights of the aboriginal peoples of Canada are hereby recognized and affirmed. The definition of "aboriginal peoples" includes "the Indian, Innuit, and Métis people of Canada."

- *UNDRIPA*[xiii]
  - Section 4 provides that the purpose of the *Act* is to affirm the Declaration (UNDRIP) as a universal international human rights instrument with application in Canadian law and to provide a framework for the Government of Canada's implementation of the Declaration
  - Section 6(1) provides that the Minister must in consultation and cooperation with Indigenous peoples and other federal ministers prepare and implement an action plan to achieve the objects of the Declaration
  - But the plan is largely prospective in nature and has no provisions for nature-based solutions

i. Analysis of Laws

For the purposes of this review, it is important to pinpoint certain processes that a project proponent must go through to implement a nature-based solution along the South Coast of B.C. This is meant to be a practical document to give those who wish to know about navigating the myriad of laws and regulations.

The *Land Act*[xiv] gives the province of B.C. discretion to sell, lease, or grant licences to others to occupy to develop the land for a variety of purposes (Nowlan 11). For the development of nature-based solutions projects on the foreshore that qualified as a fish habitat, an actor must forward a proposal to the Department of Fisheries and Oceans office in the region (Nowlan 12). This is just one of multiple types of permission documentation that an actor must submit to the government to build nature-based solutions in B.C. Another example of a nature-based solution permissions process is the Environmental Assessment, as described above, pursuant to the *Environmental Assessment Act*.

It is important to note that the laws, regulations, and guidelines described in this report can provide access to pathways to implement nature-based solutions, but that they may also erect barriers to implement them. Some barriers canvassed in the literature about B.C.'s regulatory environment with respect to flood resilience and nature-based solutions are below.

Part III: Regulatory Barriers to Implementing Nature-Based Solutions in B.C.

Good Governance Barriers

"Good Governance" in Sea Level Rise Adaptation

Because of the complex web and sheer number of laws governing the flood strategy space in B.C., conceptual framing gleaned from gray literature helps make sense of ideal goals of good governance and the pressure points within the current system (ebbwater). Good governance systems that deal with flooding require core competencies that fall into the following categories: foundational tools to support decision-making or actions; risk reduction strategies; and residual risk and recovery. Foundational tools rely on information gathered from data flowing from multiple difference sources, including scientific data and, notably, traditional First Nations knowledge. Risk reduction strategies involve core competencies of hazard control, such as the building of dikes or dams, along with planning, land management, exposure of specific risks and hazards, and addressing vulnerabilities (ebbwater 21, 22). Residual risk and resilience measures consider the ever-present risk of flooding and focus on how to recover from hazard events (ebbwater 23, 24). An example of a residual risk and resilience tool is insurance.

Additional to the above examples of good governance competencies is the important discussion about how flood governance is impacting nature-based solution implementation in B.C.. Two

different interview participants identified that one core issue that affects flood governance is the way that shorelines are treated in terms of nature-based solution project implementation. One interview participant identified that, in B.C., flood protection is currently being addressed on a "project-by-project" basis. For example, on the same shoreline, one private property owner may wish to implement a nature-based solution, while another may choose to use hard infrastructure. There is no plan and no real incentive for people to view nature-based solutions as part of a holistic shoreline protection mechanism that works with water and the shoreline as interconnected entities that must live and grow together.

Barrier: Unclear Direction

The current flood risk governance model in B.C. involves risk reduction strategies (for example, building dikes) that have a fair amount of regulation and/or guidelines, but with funding that comes from many different sources with administration by all levels of government and "many activities that have limited or no governance at this time." (ebbwater 56). There are therefore opportunities for development of flood solution infrastructure at the local level, but these localities lack direction from legislation with respect specifically to solutions that protect, preserve, and restore nature (MNAI 16). It is therefore easy for local governments or individuals to steer away from nature-based solutions and instead choose hard infrastructure that promotes the protection of property rights rather than the preservation of nature and care for human and non-human entities alike (MNAI 16). According to one interview participant, this steering away problem is made worse by a lack of enforcement measures to ensure that individual property owners have built flood mitigation structures that are in accordance with municipal by-laws. Property owners as well as municipalities may simply wish to ensure that their assets are not destroyed by flooding, and less interested in ensuring that the structures that ostensibly protect their assets are sustainable and in line with any clear strategy set out by legislation or policy. Clear direction from all levels of government and inclusion of nature-based solutions explicitly in legislation could better integrate the information gleaned to create foundational tools with the actual risk reduction strategies that end up employed in various localities.

Barrier: Fighting Floods Instead of Care for Non-Humans

Clear direction in governance of flood risk management and climate adaptation in B.C. ought to be centred in First Nations values, including, importantly, "efforts to heal the connection between land, waters, and peoples." (Vogel et al. 6). The overall governance framework that privileges an approach of fighting floods (the "status quo") does not align with the First Nations value of water and land stewardship, and this further exacerbates the lack of clear direction with respect to the regulation of flood risk governance (ebbwater 73). Fighting floods and coastal sea level rise, in other words, ought not to be the dominant mode of conceptualizing living with flood risk. The conceptual framework of "fighting" places humans and non-human entities at odds with one another, asking people to view climate change as something to be feared.

A fear-based conceptual framing of climate change including its effects, such as sea level rise and flooding, can limit opportunities to implement good governance in sea level rise adaptation involving nature-based solutions (Kunzewicz et al. 2020). Instead, a good governance framework for implementation of nature-based solutions should focus on the responsibility that humans have

to non-human entities (Vogel et al. 6) – not the idea that non-human entities, like water, are simply becoming more dangerous and therefore they need to be fought. Understanding and committing to centre First Nations' worldviews and traditional systems of knowledge can also crucially avoid replicating the dispossession of First Nations peoples through colonialism – i.e. reconciliation of the state with First Nations peoples with recognition that colonialism can in fact be replicated by regulation of the climate resilience space (Vogel et al. 8).

Barrier: Timing Impediments

Specifically for risk reduction strategies such as dikes, time represents another area where regulatory barriers exist in implementing nature-based solutions. Permitting processes to get flood management projects including nature-based solutions off the ground are long and arduous to navigate (ebbwater 74). The timing issue is worsened by frameworks taking too long to be properly implemented, such as the federal guideline to include First Nations knowledge in flood mapping (though this report notes that flood mapping is a non-structural flood management solution) (ebbwater 75).

Interview participants identified a few core permits that are required to implement nature-based solutions to flooding:

i. DFO Permit

If a nature-based solution is potentially in an area that may harm fish and/or fish habitat, the entity building the project must submit a request for review of the project to the Department of Fisheries and Oceans Canada ("DFO"). This process involves hiring a designated professional to handle preparing the application pursuant to the *Fisheries Act*, which includes preparing an environmental impact assessment. DFO will then review the project to see whether there is likely going to be any harm to fish and/or fish habitat. If it determines that no harm will come to fish and/or a fish habitat, DFO will not ask for anything further from the applicant. If, however, DFO determines that there will likely be harm to fish and/or fish habitat, then the applicant must proceed with a more onerous next step: the request for authorization. DFO at this stage will likely require the project proponent to offset the harm expected to come to fish and/or fish habitat and will specify particular actions to achieve the offset goal.

ii. Land Tenure/Crown Land Lease

Multiple interview participants specified that a lease from the Crown will be necessary to implement a nature-based solution on Crown lands. This means that the project proponent will have to apply to the government of B.C. for a land lease. Crown land includes any land that is covered by water in addition to uncovered land that is owned by the provincial or federal government. There is a streamlined process currently available for nature-based solutions under the Ministry of Forest, Lands, Natural Resource Operations, and Rural Development in partnership with the Stewardship Centre for British Columbia (Stewardship 1). To qualify for the expedited process, a project proponent must hire a qualified coastal professional (an engineer, geoscientist, or geotechnical engineer with

demonstrated experience/training related to shore protection and coastal processes) and, if necessary, a qualified environmental professional.

iii. *Environmental Assessment Act* Approval

Another type of 'permit' a project proponent will need is approval under the *Environmental Assessment Act* of B.C. Approximately half of the interview participants described this process as unnecessarily lengthy and onerous, while some of these participants noted that the *Act* itself was well-intentioned in ensuring some regulation of new flood solution projects that may otherwise have detrimental impacts.

One participant clarified the process to secure approval under the *Act*. A project is "reviewable" under the *Act* if it plans to alter, modify, or infill two hectares or more of foreshore habitat. Projects that are within 15% of the two-hectare threshold, the project proponent must inform the Environmental Assessment Office (the "EAO") of the project and the EAO, at its discretion, can choose to consider the project reviewable. If a project is reviewable, then the EAO will carry out an environmental impact assessment. A project proponent may seek an exemption from the environmental assessment under the *Act*, but this exemption process was described by one interview participant as too lengthy and expensive to be worth pursuing.

Barrier: Uncertainty

Two interview participants identified that nature-based solutions are inherently innovative and are required to be so because of how wicked the problem of flooding is. The current regulatory regime surrounding flood protection in B.C. does not reflect the inherent innovation embodied by nature-based solutions to flooding in their planning and execution. In many ways, the laws, regulations, and policies that were developed to regulate implementation and maintenance of hard infrastructure did not allow for flexibility in imagining new opportunities to deal with flooding. Tension therefore exists between inflexible governance and the inherent flexibility involved in implementing nature-based solutions to flooding. One interview participant suggested that a regulator, such as the EAO, ought to take a more flexible approach when reviewing projects that are inherently creative and involve a level of risk not typically associated with building dykes.

With respect to the old regulatory space of flood protection in B.C., an interview participant noted that all levels of government are pushing for nature-based solutions, but the practice of designing and implementing nature-based solutions is in its infancy relative to the development and implementation of hard flood protection infrastructure. There are technical challenges with implementing creative nature-based solutions in terms of management of these flood protection solutions. As a result, engineers and other flood protection professionals deal with inherent uncertainty when it comes to failure risk relating to projects that have yet been unexplored by the old regulatory system. In fact, one interview participant noted that certain pieces of legislation, such as the *Dike Maintenance Act*, specifically prohibit the inclusion of vegetation in and around dikes. Provisions for dike maintenance that explicitly disallow natural components in dikes

underscore the mismatch between solutions to flooding taking place on the ground and the regulatory environment in which they exist.

Equity Barriers

Equity Concerns in Governance of Flood Strategy in B.C.

The governance of B.C.'s flood strategy has been critiqued for failing to consider the interests of all affected parties and failing to encourage collective action. These failures have resulted in a governance framework that is marked by inequity. For example, because First Nations communities have been forced to live where flood risk is higher and because of a lack of proper resources from the government, B.C.'s governance framework has left First Nations communities more at risk (ebbwater 12). In this way, First Nations communities have faced exclusion from flood governance, even though their perspectives are very much needed. The B.C. First Nations *Climate Strategy and Action Plan* identified that First Nations communities must be empowered to self-govern, and that their governments must be included in developing laws and programming (BCFNCSAP v).

The BC Flood Strategy acknowledges that local governments must work with First Nations communities to enact place-based integrated flood management planning. It simultaneously suggests "creating change" through "exploring alternate governance approaches, more support for integrated flood management processes, and new local government guidance." (BC Flood Strategy iii). Despite this ambition, the BC Flood Strategy does not acknowledge certain legislative barriers that exist and must be dealt with. One barrier, for example, is within the *Indian Act,* a limiting piece of legislation that contradicts the government's aspirations to coordinate and co-create the use of land with First Nations peoples. Section 18(1) of the *Indian Act* states that "reserves are held by Her Majesty for the use and benefit of the respective bands for which they were set apart, and subject to the *Indian Act,* the Governor in Council may determine whether any purpose for which lands in a reserve are used or are to be used is for the use and benefit of the land."[xv] In other words, the Canadian government maintains ultimate control over whether the use of reserve lands is in the respective First Nations community's benefit. This provision creates a barrier for First Nations communities to establish self-governance and to make decisions autonomously about the use of their reserve lands, including whether to implement nature-based solutions on those lands.

First Nations Perspectives

While the Canadian, BC, and municipal governments play roles in flood governance, so do First Nations communities (ebbwater 47, 48, 49). First Nations communities promote the protection of land and water. Through implementation of First Nations-developed solutions, land and water can remain protected while also meeting climate resilience goals. First Nations communities indicate that nature-based solutions for ocean restoration and coastal protection against flooding are important because they are preferred methods to achieve water management and stewardship (BCFNCSAP 27).

It is important to note that First Nations communities may have their own ways of conceptually framing issues related to flood strategy. The BCFNCSAP adopted a First Nations-developed lens

through which to view climate change and its effects as well as strategies to mitigate those effects. The governmental regulatory landscape – i.e. laws and policy – makes up only one of a three part circle, with First Nations' lived experiences and First Nations' worldviews in the centre (BCFNCSAP 2). In some ways, First Nations conceptual framing adds themes and priorities that are left out of traditional understandings of flood governance. For example, the BCFNCSAP includes data governance as a core competency within its ideal climate strategy (BCFNCSAP 22, 23) Data governance requires that First Nations communities are supported immediately by identifying what each First Nations community in BC needs to have appropriate capacity to respond to the climate crisis (BCFNCSAP 19).

Appreciating First Nations perspectives in coastal flood management planning and implementation requires an understanding of the historical oppression of First Nations peoples by the Canadian government, well documented in the Truth and Reconciliation Commission. With respect to land claims as per treaties, First Nations communities have brought such claims through the court system as recently as April 2024, citing the government's failure to uphold responsibilities created by historical treaties. British Columbia contains unceded lands – lands that were not turned over to the Crown by treaties or other agreements and to which First Nations communities retain unextinguished title and rights (Land Acknowledgement - Kwikwetlem First Nation). The distinction between unceded and treaty lands is important, yet one interview participant noted that some government officials acting in the flood solution space do not know what unceded lands are. This knowledge gap underscores the ongoing need for consistent education of officials prior to meeting with First Nations communities to ensure a base level of respect underlying all discussions about climate solutions.

One interview participant indicated that *DRIPA* and *UNDRIP,* while currently in force, do not have alongside them clear directions to municipal governments and provincial governments as to how they are to be engaged when it comes to actually working with First Nations peoples. While the Supreme Court of Canada has articulated that First Nations with treaty lands must have authority over them, and that this authority must be respected by municipalities, a consistent approach to engagement and planning when it comes to flood protection has not been created. This lack of consistent and clear approach to engaging and working with First Nations communities represents a barrier at the foundational tools stage, where good governance may be interrupted early by a failure to comprehensively gather information from First Nations communities. It may also result in the exclusion of First Nations communities from participating in important processes that determine the course of flood protection projects such as environmental impact assessments.

Two participants noted that building relationships was important for the success of their projects. One participant, however, noted that this could make things move slowly. Processes ought to be developed to figure out what engagement with First Nations communities looks like. Timelines must be clarified, intentions set, and relationships built carefully and intentionally so that the substantive goals of *UNDRIP* and *DRIPA* are reached.

Project Scale Inequities

Two interview participants noted that there exists an inherent inequity where a nature-based solution is undertaken by a smaller or less resourced community. Because there are so many overlapping jurisdictions and overlapping laws, yet no one regulator providing clear guidance, smaller communities or even individual homeowners may not have the same resources as municipalities, for example, to find important information that they will need to embark on implementing the solution in question. Such information may be as basic yet crucial as the jurisdiction in which a certain project is located. For one interview participant, a good governance model would include proper and clear education about what permits need to be submitted and to which regulatory body.

Conclusion

The flood protection space in BC is, from a regulatory perspective, complicated and overwhelming for proponents of nature-based solutions. The author hopes that this document helps shed light on which regulatory barriers exist and gives practical tools to use in approaching nature-based solutions to potential project proponents. It is hoped that laying out regulatory barriers within both governance and equity frameworks can propel change. As a final note, the author recommends the following course of action:

1. To continue researching regulatory barriers to implementing nature-based solutions in B.C. with a focus on conducting further interviews of professionals in the coastal adaptation and flood solutions spaces with a focus on governance and equity barriers;
2. To produce a white paper on regulatory barriers to motivate change; and
3. To continue specific research on First Nations engagement and the intersection of colonialism and nature-based solutions to realize goals of *UNDRIP* and *DRIPA* and to mitigate the harmful effects of equity barriers in coastal/flood adaptation on First Nations communities.

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Notes

[i] See full legislation at https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/19044.

[ii] See full legislation at https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/r15001_01

[iii] See full legislation at https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/96250_00_multi

[iv] See full legislation at https://www.bclaws.gov.bc.ca/civix/document/id/consol12/consol12/96483_01

[v] See full legislation at https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/96095_01

[vi] See full legislation at https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/18051

[vii] See full legislation at https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/00_97021_01

[viii] See full legislation at https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/96187_01

[ix] The author acknowledges that the term “aboriginal” in this context is taken from legislation and may not be an appropriate term to use in all circumstances when speaking of First Nations communities.

[x] See full legislation at https://laws-lois.justice.gc.ca/PDF/I-5.pdf

[xi] See full legislation at https://lois-laws.justice.gc.ca/PDF/F-14.pdf

[xii] See full legislation at https://laws-lois.justice.gc.ca/PDF/Const_TRD.pdf

[xiii] See full legislation at https://laws-lois.justice.gc.ca/PDF/U-2.2.pdf

[xiv] See full legislation at https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/96245_01

[xv] See full legislation at https://laws-lois.justice.gc.ca/PDF/I-5.pdf