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**GOVERNANCE OPTIONS
FOR A CANADIAN
NORTHERN CORRIDOR**

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FOREWORD

THE CANADIAN NORTHERN CORRIDOR RESEARCH PROGRAM PAPER SERIES

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This paper "Governance Options for a New Northern Corridor" falls under the Organization and Governance theme of the program's eight research themes:

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Dr. Jennifer Winter
Program Director, Canadian Northern Corridor Research Program

GOVERNANCE OPTIONS FOR A CANADIAN NORTHERN CORRIDOR^{*†}

Andrei Sulzenko and Katharina Koch

KEY MESSAGES

- Governance issues should be considered at an early stage of CNC development in order to facilitate the establishment of a consensus on substantive questions that include corridor routing, Indigenous participation, implementation and oversight.
- CNC planning and implementation will involve a large stakeholder network spanning most provinces and territories and consisting of federal, provincial, territorial and municipal governments, as well as Indigenous communities, private corporations and the Canadian public.
- The experiences learned from previous Canadian and international infrastructure projects can provide valuable insights into effective policy frameworks, timelines and costs, routings, and implementation procedures, as well as engagement of relevant stakeholders.
- Five operating principles inform the governance strategies laid out in the paper: the initial policy framework cannot be developed without the support of the federal government; implementation should be based on a cooperative relationship between governments, Indigenous communities and private corporations; stakeholder involvement must be a central focus during all stages of corridor development; CNC implementation is a long-term process that may take place in various segments and timeframes; the CNC governance framework must be flexible enough to withstand political, economic and social transformations beyond legislative mandates.
- CNC governance can be divided into four stages of development and implementation: beginning with the development of the policy framework; deciding on a corridor route; reviewing and implementing project proposals; and managing operations and oversight. The stages are not necessarily consecutive; some may overlap.
- There are different approaches to CNC governance that vary from centralized, top-down to disaggregated, bottom-up sets of structure and processes. Most of the options throughout the four stages include a choice between new federal/provincial crown corporations, not-for-profit corporations or the deployment of existing institutions and regulatory processes.

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The case studies presented in the Annex were prepared with the assistance of Liam Plunkett, currently a research intern at the School of Public Policy and pursuing a bachelor of commerce at McGill University.

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- Developing a policy framework will most likely involve the federal government as it is the ultimate articulator of national goals and can serve as a broker among stakeholders with a view to achieving acceptable outcomes.
- In order to make corridor routing negotiations manageable, they could be divided into segments, concentrating on relevant key stakeholders within a dedicated geographic area. This would also divide CNC implementation into segments.
- At the project proposal stage there is a choice to be made on governance structures and processes: deploy existing institutions and regulatory processes; or establish a special corridor agency that reviews all projects within the designated right-of-way. Approval of proposals and their subsequent oversight would similarly be vested in the special agency or existing bodies.
- Further research related to CNC governance should focus on the creation of detailed scenarios for CNC development in terms of geographic and modal priorities, an up-to-date inventory and assessment of actual and proposed transportation infrastructure projects along the notional CNC route; an in-depth assessment of the views of Indigenous communities; detailing the relative merits of a crown corporation or a not-for-profit as the key governance structure.

CHOIX DE GOUVERNANCE POUR LE CORRIDOR NORDIQUE CANADIEN^{*†}

Andrei Sulzenko et Katharina Koch

MESSAGES CLÉS

- La question de la gouvernance du CNC doit être abordée dès les premières phases de développement afin de faciliter l'atteinte d'un consensus sur des enjeux d'importance tels que le tracé du corridor, la participation autochtone, la mise en œuvre et la surveillance des activités.
- La planification et la mise en œuvre du CNC seraient assurées par un vaste réseau d'intervenants provenant de la plupart des provinces et des territoires et comprenant les gouvernements fédéral, provinciaux, territoriaux et municipaux ainsi que les communautés autochtones, les sociétés privées et la population canadienne.
- Les expériences tirées d'autres projets d'infrastructure au Canada ou à l'étranger apportent de précieuses informations sur les cadres stratégiques, les délais, les coûts, les tracés et les procédures de mise en œuvre, ainsi que sur l'engagement des intervenants concernés.
- Les cinq principes de fonctionnement suivants ont servi à éclairer les stratégies de gouvernance énoncées dans l'article : le cadre stratégique initial ne peut être élaboré sans le soutien du gouvernement fédéral; la mise en œuvre doit se baser sur une relation de coopération entre les gouvernements, les communautés autochtones et les sociétés privées; l'engagement des parties prenantes doit être au centre de toutes les étapes du développement du corridor; la mise en œuvre du CNC est un processus à long terme qui peut comprendre divers segments dont les calendriers d'exécution varient; le cadre de gouvernance du CNC doit être assez flexible pour résister aux changements politiques, économiques et sociaux, et ce, au-delà des mandats législatifs.
- La gouvernance du CNC peut se diviser en quatre étapes de développement et de mise en œuvre : développement d'un cadre stratégique; choix du tracé du corridor; examen et mise en œuvre des propositions de projet; gestion des opérations et de la surveillance. Ces étapes ne sont pas nécessairement consécutives, elles peuvent se chevaucher.
- Il existe divers modes de gouvernance pour le CNC, qui vont de structures et processus centralisés descendants à des structures et processus fragmentés

* Les études de cas présentées en annexe ont été préparées avec l'aide de Lima Plunkett, étudiant au baccalauréat en commerce à l'Université McGill et actuellement stagiaire de recherche à l'École de politiques publiques.

† Cette recherche a été soutenue financièrement en partie par le gouvernement du Canada via Diversification de l'économie de l'Ouest Canada.

et ascendants. La plupart des choix de gouvernance pour les quatre étapes de développement peuvent se faire par une nouvelle société d'État fédérale ou provinciale, par une société sans but lucratif, ou encore par le recours aux institutions et processus réglementaires déjà en place.

- L'élaboration d'un cadre stratégique devra très probablement compter sur l'apport du gouvernement fédéral, car il est l'agent principal pour les objectifs nationaux et peut servir d'intermédiaire entre les parties prenantes en vue d'atteindre des résultats acceptables.
- Afin de faciliter la gestion des négociations sur le tracé du corridor, elles pourraient être divisées en segments qui réuniraient les intervenants pertinents d'une zone géographique donnée. Cela diviserait aussi en segments la mise en œuvre du CNC.
- Dès l'étape de la proposition de projet, il y a un choix à faire sur les structures et processus de gouvernance : avoir recours aux institutions et processus réglementaires déjà en place ou créer un organisme spécial qui examinerait tous les projets prévus pour l'emprise désignée. L'approbation des propositions et les contrôles subséquents serait aussi du ressort de l'organisme spécial ou des institutions déjà en place.
- La recherche à venir sur la gouvernance du CNC devrait se concentrer sur : la création de scénarios détaillés pour le développement du CNC, principalement en ce qui concerne les priorités géographiques et modales; un inventaire à jour et une évaluation des projets d'infrastructure de transport réels et proposés le long du tracé théorique du CNC; une évaluation approfondie des points de vue des communautés autochtones; une liste des mérites relatifs d'une société d'État ou d'un organisme sans but lucratif en tant que structure de gouvernance.

SUMMARY

Governance issues deserve to be considered at an early stage of CNC development in order to facilitate decision-making processes on substantive questions, such as corridor routing, Indigenous consultation and oversight. Since CNC implementation will include a large stakeholder network, developing different governance scenarios is essential to creating a broad consensus on key policy issues.

In this paper, the governance process is divided into four main stages: i) Developing the initial policy framework; ii) Deciding on a corridor route; iii) Reviewing and implementing project proposals; and iv) Managing ongoing operations and oversight. For each stage, different governance options are outlined and then critically examined.

The analytical lens throughout the paper concentrates on the broad stakeholder network which informs the policy options, thus considering several scenarios with a significant focus on the inclusion of Indigenous Peoples and communities. In order to ground the discussion, the paper develops five operating principles which also serve as best governance practices in the context of the CNC. These principles are based on the policy implementation conditions presented by Sabatier and Mazmanian (1979); namely, a sound initial policy framework; unambiguous implementation processes and transparent policy directives; an inclusive stakeholder network recognizing different interests; awareness of time-frames in the sense that CNC development will transcend electoral cycles; and project implementation is not undermined by changing political or socio-economic circumstances.

The analysis of policy options is supported by an examination of previous existing, planned or cancelled infrastructure projects throughout Canada and internationally. The analyzed case studies include the Mackenzie Valley pipeline and the Aboriginal Pipeline Group, the Grays Bay Road and Port project, the Mackenzie Valley Land and Water Board (MVLWB), the International Joint Commission (IJC), the Columbia River Treaty, the St. Lawrence Seaway Commission, the Pilbara Corridor project in Australia and the Scandinavian-Mediterranean (ScanMed) corridor in the European Union. All of these projects reflect a variety of different characteristics in the sense that they offer a broad overview of different uni- and multi-modal infrastructure models. Furthermore, the MVLWB and the IJC represent key authorities in several infrastructure projects. The MVLWB in particular unites a number of other Indigenous organizations (such as the Sahtu Land and Water Board) and functions as an umbrella organization for the land and water use planning in several Indigenous territories in the Northwest Territories (NWT).

The paper first introduces the broader Canadian political context which significantly determines stakeholder engagement. For example, road and railway projects are often implemented and managed by Transport Canada and the Canada Energy Regulator (CER) is responsible for energy transmission lines. Thus, the federal level will also carry a key role in the initial policy framework decision-making process. Indeed, federal leadership is essential in facilitating consensus-building among governments, Indigenous groups and industry stakeholders for a multi-faceted and multi-year

infrastructure development plan in the North and near-North. The governance options available at each of the four stages need to reflect on-the-ground reality with a clear need to adopt approaches that are sustainable over the long term.

The second stage, corridor routing, can be decided upon by establishing a federal Crown corporation, not-for-profit organization or special committees. The previous two carry the advantage that existing legislation would guide their set-up. The stakeholder committee would be more informal but would also guarantee stakeholder participation across the breadth of interested parties. It could make sense to divide the CNC into separate geographical segments in order to facilitate stakeholder engagement as well as regulatory and legislative procedures regarding, for example, environmental impact assessment and Indigenous consultation. In this way, it would also be easier to recognize different jurisdictional responsibilities across Canada's provincial and territorial boundaries. The CNC can be developed in a segmented manner, effectively concentrating relevant stakeholders according to geographical regions and to maximize consensus-reaching potential.

The third and fourth stages of CNC governance, reviewing and implementing proposals as well as managing ongoing operations and oversight, are somewhat linked. If a Crown or not-for-profit corporation were chosen for project review and implementation, it would also make sense to have it responsible for managing ongoing operations and accountability. Another option would be to use existing institutions and regulatory processes (i.e., Transport Canada for roads and rails; CER for electricity transmission lines). This may save time on certain aspects of CNC implementation because capacity for managing certain infrastructure modes already exists at the federal, territorial, provincial and municipal levels.

A CNC can only be successful if it operates from a pan-Canadian perspective rather than following a piecemeal approach of separate projects. This does not mean, however, that the CNC cannot proceed in different stages. Certain infrastructure modes may be already in early development, and the establishment of a CNC right-of-way would facilitate their construction. Infrastructure needs differ across the provinces and territories. For example, Alberta is currently focusing on the approval of pipeline projects. Eastern provinces such as Quebec focus on energy security through the development of hydroelectricity. Across the three territories, communities may face unique challenges due to climate change and accelerated melting of the ice, leading to, for example, premature melting of ice roads.

Consultation and consensus-seeking among all relevant stakeholders, and particularly Indigenous communities, are key aspects of CNC governance. The emphasis must be on the fact that the CNC envisions a multi-modal character, avoiding pivoting toward one infrastructure mode in particular. Indigenous consultation strategies will have to be designed to recognize the variety of land and treaty rights of First Nations, Inuit and Métis. Yet, previous research has often emphasized that the current piecemeal approach to Canadian infrastructure development does not work (Everingham et al. 2013).

The paper puts forward a potential hybrid approach to governance, combining centralized and decentralized elements through the four stages of CNC development. The main rationale for this approach is that it is practical and flexible enough to cope with what may prove to be initially diverse views among stakeholders. Indeed, an early next step to test stakeholder preferences would be to organize a symposium on governance options. The paper closes with four proposed topics for further research that would be informed by the symposium's results.

RÉSUMÉ

La question de la gouvernance du CNC doit être abordée dès les premières phases de développement afin de faciliter la prise de décisions sur des questions de fond telles que le tracé du corridor, la consultation auprès des communautés autochtones et la surveillance des activités. Étant donné que la mise en œuvre du CNC concerne un vaste réseau de parties prenantes, il est essentiel d'élaborer divers scénarios de gouvernance pour atteindre un large consensus sur les questions d'ordre politique.

Dans cet article, le processus de gouvernance est divisé en quatre étapes principales : i) élaboration d'un cadre stratégique, ii) choix du tracé du corridor, iii) examen et mise en œuvre des propositions de projet et iv) gestion des opérations et de la surveillance. Pour chacune des étapes, les choix de gouvernance sont décrits puis soumis à un examen critique.

Le prisme analytique adopté pour ce travail se concentre sur le vaste réseau de parties prenantes qui informe les choix stratégiques. L'article envisage ensuite plusieurs scénarios qui mettent l'accent sur l'inclusion des peuples et des communautés autochtones. Afin de jeter les bases pour la discussion, le document propose cinq principes de fonctionnement qui pourront servir de pratiques de gouvernance exemplaires pour le CNC. Ces principes reposent sur l'ensemble des conditions proposées par Sabatier et Mazmanian (1979) pour garantir la mise en œuvre d'une politique, à savoir un solide cadre stratégique de départ, des processus de mise en œuvre sans ambiguïté et des directives transparentes, un réseau de parties prenantes inclusif et qui reconnaît les divers intérêts, la conscience d'un calendrier d'exécution qui transcende les cycles électoraux et, finalement, une mise en œuvre qui n'est pas entravée par la conjoncture politique ou socio-économique.

L'analyse des choix stratégiques s'appuie sur l'examen de projets d'infrastructure au Canada et à l'étranger. Les études de cas concernent les projets suivants : le pipeline de la vallée du Mackenzie et l'Aboriginal Pipeline Group, le projet de route et de port de Grays Bay, l'Office des terres et des eaux de la vallée du Mackenzie (MVLWB), la Commission mixte internationale (CMI), le Traité du fleuve Columbia, la Commission de la voie maritime du Saint-Laurent, le projet de corridor du Pilbara en Australie et le corridor Scandinave-Méditerranéen dans l'Union européenne. Tous ces projets présentent des caractéristiques propres qui donnent un aperçu des divers modèles d'infrastructure unimodaux et multimodaux. En outre, le MVLWB et la CMI font figure d'autorité pour plusieurs projets d'infrastructure. Le MVLWB, en particulier, regroupe un certain nombre d'organisations autochtones (comme l'Office des terres et des eaux du Sahtu) et fonctionne comme organisation-cadre pour la planification de l'utilisation des terres et de l'eau dans plusieurs territoires autochtones des Territoires du Nord-Ouest (T.N-O.).

L'article commence par présenter le contexte politique canadien, qui détermine considérablement le niveau d'engagement des parties prenantes. Par exemple, les projets routiers et ferroviaires sont habituellement mis en œuvre et gérés par

Transports Canada alors que la Régie de l'énergie du Canada (REC) est responsable des lignes de transport d'énergie. Ainsi, le fédéral jouera un rôle clé dans les processus décisionnel pour le cadre stratégique initial. En effet, le leadership fédéral est essentiel pour faciliter l'atteinte d'un consensus entre les gouvernements, les groupes autochtones et les intervenants de l'industrie autour du plan de développement d'infrastructure multidimensionnel et pluriannuel dans le Nord et le Moyen Nord. Les choix de gouvernance pour chacune des quatre étapes doivent être durables et refléter la réalité sur le terrain.

La deuxième étape, soit le tracé du corridor, peut être décidée par une société d'État fédérale, un organisme sans but lucratif (OSBL) ou des comités spéciaux. Les sociétés d'État et les OSBL bénéficient d'une législation pour guider leur mise en place. Les comités réunissant divers intervenants sont, quant à eux, plus officieux mais permettent de garantir la pleine participation des intervenants. Il pourrait être judicieux de diviser le CNC en segments géographiques afin de faciliter l'engagement des parties prenantes ainsi que les procédures réglementaires et législatives concernant, par exemple, l'évaluation de l'impact environnemental ou la consultation auprès des communautés autochtones. De cette façon, il serait plus facile de reconnaître les responsabilités respectives de chacun, en fonction des frontières provinciales et territoriales. Le CNC peut être développé par segments, en regroupant efficacement les intervenants concernés selon les régions géographiques ou de façon à maximiser l'atteinte d'un consensus.

Les troisième et quatrième étapes, soit l'examen et la mise en œuvre des propositions ainsi que la gestion des opérations et de la surveillance, sont quelque peu liées. Si une société d'État ou un OSBL était choisi pour l'étude du projet et sa mise en œuvre, il serait logique de lui confier aussi la gestion des opérations courantes et la reddition de comptes. Il est aussi possible d'avoir recours aux institutions et processus réglementaires déjà en place (c'est-à-dire Transports Canada pour les routes et les voies ferrées, le REC pour les lignes de transport d'électricité). Cela pourrait faire gagner du temps pour certains aspects de la mise en œuvre du CNC, car il existe déjà une capacité de gestion de certains modes d'infrastructure aux niveaux fédéral, territorial, provincial et municipal.

Le CNC sera une réussite seulement s'il s'inscrit dans une perspective pancanadienne plutôt que dans une approche fragmentaire constituée de plusieurs projets distincts. Cela ne signifie pas pour autant qu'on ne puisse pas procéder par étapes. Certains modes d'infrastructure en sont peut-être déjà à la phase de développement et la création d'une emprise pour le CNC faciliterait leur construction. Les besoins en infrastructure diffèrent selon les provinces et les territoires. Par exemple, l'Alberta se concentre actuellement sur l'approbation des projets de pipeline. Les provinces de l'Est comme le Québec mettent l'accent sur la sécurité énergétique par le développement de l'hydroélectricité. Dans les trois territoires, les collectivités font face à des défis particuliers en raison du changement climatique et de la fonte accélérée de la glace, ce qui entraîne, par exemple, la fonte prématurée des routes de glace.

La consultation et la recherche de consensus entre toutes les parties prenantes concernées, en particulier les communautés autochtones, sont des aspects clés de la gouvernance du CNC. L'accent doit être mis sur le fait que le CNC a un caractère multimodal, tout en évitant de pivoter vers un mode d'infrastructure particulier. Les stratégies pour la consultation auprès des communautés autochtones devront reconnaître la diversité des droits fonciers et des droits issus de traités chez les Premières Nations, les Inuits et les Métis. Toutefois, plusieurs recherches soulignent que l'approche fragmentaire actuelle du développement de l'infrastructure au Canada ne fonctionne pas (Everingham et al. 2013).

L'article propose un mode de gouvernance hybride, qui combine des éléments centralisés et décentralisés pour les quatre étapes de développement du CNC. La principale justification de cette approche est qu'elle est assez pratique et flexible pour faire face à la diversité de points de vue parmi les parties prenantes. En effet, pour prendre connaissance des préférences des diverses parties prenantes, il serait judicieux d'organiser un symposium sur les choix de gouvernance. L'article conclut en proposant quatre thèmes pour d'éventuelles recherches, qui seraient éclairées par les résultats du symposium proposé.

1. INTRODUCTION

The concept of a Canadian Northern Corridor (CNC), linking the west, north and east coasts plus Hudson's Bay, imposes a large variety of practical questions regarding its routing, engineering and financing and thus requires further economic, social and environmental impact assessments. However, before addressing these issues, the development of a new, multi-modal transportation right-of-way, aiming to connect Canada's North and South, faces significant challenges regarding decision-making processes, involving negotiations within a large stakeholder network (see Sulzenko and Fellows 2016, 28). Accordingly, this paper reviews various governance options and provides concrete suggestions to initiate and facilitate dialogue on the options among relevant stakeholders.

The main reason for focusing on various governance options at an early stage is that transforming the CNC concept into reality requires, as a precondition, a broad consensus among a large and diverse stakeholder network.

Developing a blueprint for stakeholder engagement and recognizing their respective roles and responsibilities supports the timely progress of a CNC. In general, stakeholders represent individuals or groups whose "collective action leads to the formulation of the social norms that guide, prescribe, and sanction collective and individual behavior" while governance processes refer to the stakeholders' complex interactions over time (Hufty 2011, 407). Governance refers to modes of tackling issues through the interconnection of institutions and stakeholders from multiple sectors (see Agranoff and McGuire 2003; Everingham et al. 2013, 586; Rhodes 2007). In the case of a CNC, stakeholders involve federal, provincial and territorial governments, Indigenous Peoples² the private sector and various NGOs, as well as the Canadian public. Accordingly, this paper's main premise is that a robust governance regime will be critical for the planning and implementation of the corridor (see Sulzenko and Fellows 2016, 28-29).

Based on the definition of governance developed by Hufty (2011),³ this paper interprets it as the modalities required at various stages of CNC policy framework development and implementation, mandates and operating principles, and the processes that stakeholders employ in meeting their objectives. Governance processes are thus inherently linked to the stakeholder network and are based on its dynamics. A policy framework is the foundation for a set of agreements and procedures developed by various stakeholders toward common goals. Policy frameworks present formalized

²

The authors recognize that Indigenous Peoples are not only stakeholders but also "rights-holders" according to Section 35 of the *Constitution Act* of 1982 which recognizes and affirms the "existing aboriginal and treaty rights of the aboriginal people in Canada" (Government of Canada 1982). While there is a distinction between the different rights-holders; stake-holders; partners and interested groups, for the sake of identifying "actors", the paper uses the term "stakeholders", especially when referring to multiple parties involved in certain processes simultaneously.

³

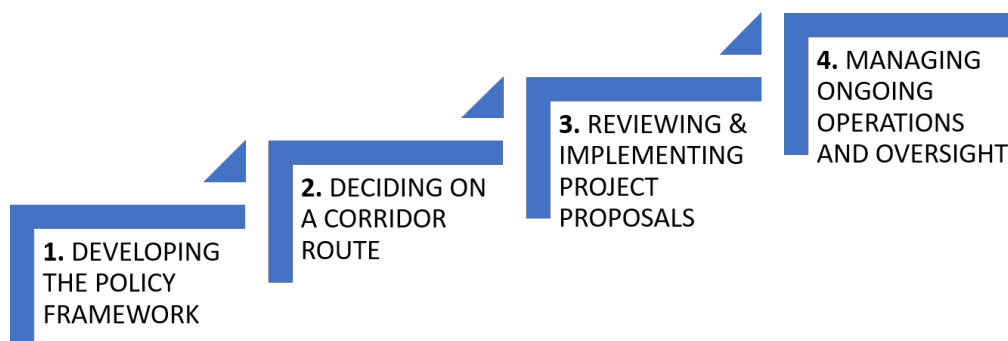
Definition of governance according to Hufty (2011, 404): "Governance refers to a category of social facts, namely the processes of interaction and decision-making among the actors involved in a collective problem that lead to the creation, reinforcement, or reproduction of social norms and institutions".

ideas and strategies and should be flexible enough to withstand political and socio-economic changes.

Governance studies often focus on what constitutes best practices (i.e., Nanda 2006; Weiss 2011); namely, a sound legal foundation, responsiveness, consensus orientation, equity and inclusiveness, effectiveness and efficiency, accountability, participation, openness, transparency and integrity. While these are all appropriate attributes of a modern governance regime, they focus on how policies should best be implemented. However, the proposed corridor is currently at a conceptual stage and therefore, efforts should also be made to address policy formulation before evaluating best implementation practices, followed by assessment and subsequent policy re-formulation (Mazmanian and Sabatier 1989).

A discussion about CNC governance can be parsed out into an analysis of the options available to decision-makers at each stage of corridor development (Figure 1).

Figure 1. Stages of CNC Development and Implementation.



Each of these stages involves identifying stakeholders and their specific decision-making roles and authorities. By scrutinizing relevant examples of Canadian and international infrastructure governance regimes,⁴ this paper will analyze various options in each stage and then make an overall assessment of a potentially feasible approach. Our rationale for these case studies is based on their distinct characteristics, as the goal is to provide examples of different infrastructure modes (roads, pipelines, ports, hydroelectricity, etc.) as well as multi-modal (i.e., ScanMed corridor) and unimodal projects (e.g., Mackenzie Valley pipeline). The list also includes projects that have been completed (i.e., St. Lawrence Seaway), are in planning (Grays Bay Road and Port project) and have been cancelled (e.g., Mackenzie Valley pipeline). There is also a differentiation between infrastructure projects and authorities; for example, the MVLWB participates in a variety of infrastructure development projects, similar to the IJC.

The discussion will be based on the following three research questions: (1) What are the key variables, issues and institutional aspects that should be considered in designing a

⁴ A detailed summary of the discussed infrastructure projects can be found in the Annex.

CNC governance regime? (2) Which stakeholders should participate in the governance structure and how should they interact within this structure? (3) How should the issues arising from consultation requirements, oversight and accountability and the need for co-operation and dispute resolution be incorporated? By addressing these questions, the paper develops a conceptualization of governance in the CNC context and proposes a potential governance approach.

The following section discusses the current political context as well as the range of stakeholders expected to participate in CNC deliberations. Section 3 introduces five operating principles which are based on the conditions for effective policy implementation outlined by Sabatier and Mazmanian (1979). The principles provide the basis for a discussion of governance options in Section 4 which are presented for each of the four stages presented in Figure 1. Section 5 offers a critical evaluation and assessment of conditions enabling corridor development followed by a potential governance approach. The conclusion highlights key aspects of CNC governance and proposes further research avenues.

2. POLITICAL CONTEXT FOR STAKEHOLDER ENGAGEMENT IN NORTHERN CORRIDOR GOVERNANCE

In Canada, four-year electoral cycles differ widely among federal, provincial and territorial jurisdictions. In a given year, therefore, there can be a number of elections across the country that could result in changed policy positions on a wide range of issues. In addition, minority governments, currently at the federal level and in British Columbia, can disrupt the cadence of electoral cycles while creating further uncertainty of policy continuity. Therefore, even if major decisions on proceeding with a CNC could be undertaken within the span of a few years, the fact that thereafter it would be a multi-decade project, creates enormous challenges for sustained collaboration. These factors suggest that the only way forward on a CNC or other large multi-jurisdiction projects involves painstaking consensus-building that will endure over many years.

Among the provinces, Alberta and Saskatchewan are keen to pursue initiatives providing access to new markets for their natural resource products, in particular oil and gas. The campaign platform of the current Alberta government included the creation of an “energy corridor” though this aspect was taken up more profoundly during the Conservatives’ federal election campaign in 2019. That corridor concept reflected a narrow and therefore limiting approach compared to a multi-use CNC that was endorsed by Canada’s Senate review in 2017 (Senate of Canada 2017a). Similarly, successive governments of the Northwest Territories have advocated transportation infrastructure investment as a priority for economic and social development.

At the federal level, Transport Canada is the lead institution for any strategy to develop the transportation system across Canada. The Transport Canada portfolio alone includes 55 organizations, including shared governance organizations (i.e., St. Lawrence Seaway Management Corporation), Crown corporations (i.e., Via Rail Canada

Inc.), administrative agencies, funds and administrative tribunals (Transport Canada 2019). Although Transport Canada is involved with a variety of groups, including Indigenous Peoples, industry, provincial and territorial governments, and international partners, the federal institution is “not directly responsible for all aspects of modes of transportation” (Transport Canada 2019). Notably, the construction and maintenance of energy transmission lines and pipelines are overseen by the Canada Energy Regulator (2019) which consists of 500 specialists from a variety of backgrounds and representing different fields of expertise (i.e., engineers, scientists, inspectors, lawyers, economists).

Notwithstanding the federal leadership role on various previous and ongoing infrastructure projects, it reminds us of the challenging consensus-building process resulting from resource development disputes; for example, during the expansion of the Trans Mountain Pipeline carrying crude oil between Alberta and British Columbia (Boyd and Loreface 2019). Furthermore, the Keystone XL pipeline project, a bilateral undertaking between Canada and the U.S., has been halted numerous times due to regulatory hearings that were deemed insufficient to satisfy Indigenous consultation laws, resulting in a process which has now lasted more than a decade (Huseman and Short 2012, 228). Stakeholder negotiations among industry, governments, Indigenous Peoples and their respective representatives must therefore be a focus when outlining CNC governance options and processes (McCreary and Turner 2018).

Despite these kinds of challenges, the Canadian federal government recently released *Canada’s Arctic and Northern Policy Framework* which advocates improved connections in the North and includes the objective for multi-purpose corridors across the three territories, while also recognizing the impact of climate change on northern and Arctic infrastructure developments (Crown Indigenous Relations and Northern Affairs Canada 2019). This framework, released in August 2019, suggests a long-term northern and Arctic infrastructure strategy supported not only by the federal government but also a variety of Indigenous umbrella organizations such as the Inuit Tapiriit Kanatami (2020, 10) representing 65,000 Inuit across Canada.

Since the CNC route will cross the boundaries of Indigenous lands, developing a consensus-based corridor policy framework is intrinsically linked to the resolution of long-standing land claim processes and other disputes. Indigenous consultation will be a key aspect of CNC development, and project proponents are obliged to consult with and consider the views of Indigenous Peoples. For this, government and industry should make use of Indigenous traditional land use data when planning operations (Baker and Westman 2018, 146). Indigenous communities should also gain the opportunity to execute their agency by participating in the identification of practical solutions to disputes and raising awareness of their land uses in the affected areas.

The federal election held in October 2019 led to the creation of a minority Parliament, imposing particularly challenging circumstances for the ability to engage in long-term policy planning. In these circumstances, proponents of the CNC will need to demonstrate its compatibility with the current government’s policy goals of reconciliation with Indigenous Peoples, promotion of sustainable economic development, climate change

mitigation and the defence of Arctic sovereignty. In fact, these elements are linked and embedded in the corridor concept. However, they need to be carefully articulated and branded in terms that capture the Canadian public's imagination.

3. OPERATING PRINCIPLES

While there are numerous impediments to achieving consensus among the vast stakeholder network expected to participate in CNC development, this paper develops a number of operating principles that could help offset these challenges. The principles, designed to ground the subsequent discussion on policy options in Section 4, are based on five conditions for effective policy implementation presented by Sabatier and Mazmanian (1979): (1) policy program is based on a sound theory; (2) implementation is based on unambiguous and transparent policy directives; (3) stakeholder network and its policy leaders possess significant political and managerial skills; (4) the program is supported by constituency groups; and (5) the implementation of the project is not undermined over time by changing circumstances.

I. Initial Policy Framework. The principal catalyst for a new transportation corridor is often private-sector demand to improve access to overseas markets. For example, the Pilbara corridor in Australia was established after significant pressure from Japanese investors to internationalize the Australian market of iron ore (Ellem 2015, 327). In this case, the Australian government was a key actor providing the necessary regulatory frameworks. In a similar fashion, the Canadian federal, provincial and territorial governments can assume leadership to ensure that risk-reducing policy, legal, regulatory and administrative frameworks are established under which the private sector can participate in the corridor's implementation.

Based on recent Canadian experience, for example with the lengthy approval process of the Trans Mountain pipeline (National Energy Board 2019, 2-3), public policy frameworks are essential for incentivizing and de-risking business investment of resource-related transportation projects. However, enabling policy frameworks do not always prevent project failures, as for example when the Mackenzie Valley pipeline succumbed officially in 2017 after a lengthy 10-year period of regulatory processes as well as structural declines in international gas prices.

Furthermore, the benefits of the CNC reach beyond private-sector returns and include a variety of positive spillover effects for northern communities, such as reduced costs, cleaner energy usage, improved connectivity and permanent job opportunities (Fellows and Tombe 2018). The federal government should develop an inclusive policy framework which emphasizes the participation of Indigenous stakeholders in addition to industry actors. Recent transportation frameworks published by the federal government also develop a theme of connecting Canada (Infrastructure Canada 2019, 23). This theme could serve to promote public interest in connecting the North and near-North to southern Canada and in helping to connect Canada to markets other than the U.S.

II. Implementation. Specific projects should be based on a co-operative relationship among governments, businesses and Indigenous Peoples. Following the previous assumption, governments should provide a regulatory strategy that organizes business planning and funding of specific infrastructure projects. This will be particularly relevant for the planning review and implementation of individual projects, serving as a guide for individual stakeholder groups. For example, in the Northwest Territories, implementation of projects will likely include the Mackenzie Valley Land and Water Board as it, in close partnership with respective Indigenous authorities from the Sahtu, Gwich'in and Wek'èezhii Land and Water boards, carries decision-making authority regarding large portions of Indigenous territories, including lands in which claims have not yet been settled (MVLWB 2019).

Although governments generally assume a key role in developing initial frameworks, the main goal is to work toward implementation arrangements that not only recognize federal/provincial/territorial and business interests but also respect various environmental requirements and Indigenous rights. In order to facilitate timely development of the CNC, implementation may need to proceed in a segmented manner as rules and regulations change across provincial, territorial and Indigenous boundaries. The challenge of multiple jurisdictions is similar to that experienced in the establishment of the ScanMed corridor in Europe even though integration of transport and infrastructure policies was comparatively advanced in the European Union (EU) context.

III. Stakeholder Involvement. Although the federal government, with its jurisdictional responsibility for transportation that crosses provincial and territorial boundaries, could take a lead role in the CNC, provincial and territorial governments as well as Indigenous Peoples need to be considered equal partners as they are the primary custodians of their respective lands. Everingham et al. (2013, 586) argue that regulatory systems in which governments establish individual projects in a “piecemeal” approach do not respond effectively to potential tensions among stakeholders. Recognizing this caveat, the CNC should brand itself as a pan-Canadian transport and infrastructure network that joins the Canadian North and near-North to the south. However, proceeding on all segments of a 7,000-kilometre corridor simultaneously might prove impractical considering the likely diversity of interests across the country. In these circumstances, stakeholders in regions most ready to proceed should not be hindered from going ahead of others.

The CNC will need to accommodate many different interests. Achieving consensus will be a main challenge which underlines the importance of designing governance structures that facilitate meaningful consultation while achieving timely decision-making (Boyd and Lorefice 2019). A central focus will be on Indigenous consultation as outlined in federal guidelines. In particular, the consultation strategy, which the federal government published in 2016, emphasizes that federal officials and industry proponents require “more guidance and training to better understand and adapt to the context in which they are undertaking consultation” (Indigenous and Northern Affairs Canada 2016). This also means raising awareness about the differences between First

Nations, Inuit and the Métis which require a nuanced, rather than a one-size-fits-all, consultation approach. Failing to do so can result in the courts delaying long-term regulatory processes.

IV. Time-frame. The implementation of a new transportation corridor will certainly transcend multiple four-year mandates of governments. Large-scale infrastructure development and implementation have, throughout the last century, taken many decades mostly due to regulatory delays rather than engineering challenges. For example, interest in a Saint Lawrence seaway dates back to the 1890s. Negotiations between the U.S. and Canada lasted 50 years with several failed treaties in 1932 and 1941 (Clamen and Macfarlane 2018, 417). During the 1950s, the St. Lawrence Seaway Authority was established by an Act of Parliament and the Seaway's construction commenced.

Regardless of the Seaway being a mega-project at the time, environmental issues were of no concern to the involved stakeholders. Macfarlane (2015, 220) elaborates that “the state handling of both the Niagara Falls and the St. Lawrence projects reveals that federal and sub-federal governments had a shared conceptualization of the environment as something to be mastered through technology.” There was no compulsory environmental legislation; therefore, there is no real comparison to be made regarding implementation challenges between the St. Lawrence Seaway and the CNC.

Governments will need to ensure adherence to environmental and Indigenous regulatory frameworks, including the involvement of scientific experts to evaluate not only the impact of infrastructure development on the environment but also the ensuing mining activities and their consequences on, for example, caribou herds (Parlee et al. 2018). Previous infrastructure projects in Canada have proven that such negotiations can last over a decade.

V. Flexible Governance. A fifth operating principle derived from the complexity envisaged for a multi-stakeholder, geographically dispersed and technically demanding project, is that a single governance model may not be sufficient for all project stages. In addition, further parsing of various stages may be required to ensure timely progress.

While the development of an initial CNC policy framework (Stage 1) is a prerequisite for succeeding stages, developing the corridor route (Stage 2) and the review of project proposals (Stage 3) could be implemented incrementally in those segments of the corridor that are operationalized within the initial policy framework. This implies the need to establish multiple governance structures and processes within an overall framework.

From an international perspective, we can look to governance examples involving several large-scale infrastructure projects resembling the CNC; for example, the Australian Pilbara Corridor which represents a mining region in Western Australia that began development in the 1960s to supply Asia with both mining and energy products (Satchwell 2012). Domestic and international market forces pressured the Australian government to lift a long-standing iron ore embargo in 1960. As a result, the Australian

government entered into agreements with companies about development conditions (Barratt and Ellem 2019, 1559).

At first, a number of companies dependent on the government for mining access provided most of the infrastructure in the Pilbara region, such as rail and roads. Subsequently, the Australian government introduced the National Access Regime (NAR) in 1995 to provide a framework for a consistent approach to regulation in each industry benefiting from access to the infrastructure network (Collier and Ireland 2018, 66). The NAR serves those stakeholders without agreement in gaining access to the infrastructure; therefore, it is an umbrella framework which grants the Australian government decision-making responsibility to “declare” infrastructure once an application is accepted. This declaration grants applicants the permission to negotiate terms of access with infrastructure owners. A similar procedure could be applicable in the CNC framework. If CNC governance is characterized by a segmented implementation structure, the initial policy framework could serve as an encompassing umbrella, thereby allowing enough flexibility to adapt to changing circumstances within the corridor’s different segments.

4. GOVERNANCE OPTIONS IN THE FOUR STAGES OF CNC IMPLEMENTATION

The following section presents a number of policy options for each stage of CNC development, contextualized in terms of Canadian and international experience with existing infrastructure projects. Discussing several options helps to develop a comprehensive governance framework which reflects policy and economic uncertainty and responds flexibly to changing circumstances. Table 1 presents an overview of the four stages and their respective policy options.

Table 1. CNC Structural Governance and Policy Options

Policy stage	Option a)	Option b)	Option c)	Option d)
1. Developing the policy framework	First Ministers' Conference	Arm's-length group	Parliamentary committee	Green or white paper
2. Deciding on a corridor route	Federal Crown corporation	Not-for-profit corporation	Special committee(s)	-
3. Reviewing and implementing project proposals	Federal/provincial Crown corporation(s)	Not-for-profit corporation	Existing institutions and regulatory processes	-
4. Managing ongoing operations and oversight	Federal/provincial Crown corporation(s)	Not-for-profit corporation	Existing institutions and regulatory processes	Independent operations and oversight body

4.1. DEVELOPING THE POLICY FRAMEWORK

Recent experience gained from the development of the bi-national Keystone XL as well as the Canadian Trans Mountain pipelines demonstrates the challenge of reconciling competing interests. This is not to suggest that the current legal and regulatory system of infrastructure development in Canada is fundamentally broken. Rather, it reflects the reality of a leadership vacuum in negotiating a consensus among many, sometimes discordant, voices. In Canada, such leadership can be offered only by the federal government, the ultimate articulator of national goals and broker of acceptable outcomes.

In replacing multiple one-off projects with a single pan-Canadian project, the CNC carries the advantage of mitigating political risk by allowing for a geographically wide-ranging and multifaceted plan that offers ample room to accommodate different valid interests. It therefore presents a better opportunity than the current piecemeal approach for a federal government to take a leadership role. In these circumstances, the federal government would have a number of options in moving forward with the policy framework for a new corridor:

a) First Ministers' Conference. The conference, supported by a committee of federal, provincial and territorial officials, is a high-risk/high-award approach. It carries a high risk because the political dynamics of such conferences have often been unpredictable, even when carefully managed in advance. At the same time, it promises a high reward because achieving consensus on a course of action regarding the CNC allows a powerful, positive political impetus. The first ministers' option is useful mainly for high-level endorsement and direction, periodic checking on progress and necessary course correction based on intergovernmental advice. It could also include Indigenous representation.

The first ministers' approach promotes high-level consensus on a new infrastructure corridor because as recently as July 2019, the provincial and territorial premiers' Annual Meeting of the Council of the Federation endorsed almost unanimously "further discussions on pan-Canadian economic corridors, both east-west and north-south" (Canada's Premiers 2019, 3). Although the Quebec government expressed reservations specifically about new oil pipelines, it remained "open to [...] the transmission of hydroelectricity and the transport of natural gas towards markets."

b) Arm's-Length Group. Such a group would carry the mandate to consult with stakeholders and to develop recommendations within a specific time-frame. In the past, successive federal governments have tasked blue-ribbon groups, often led by a businessperson or academic, to provide policy advice on discrete issues. Referring the issue to an arm's-length group involves some level of federal direction through the mandate, and it would signal a more open-ended federal position. However, unless the group was convened early in a four-year mandate with a clear deadline, the process could easily spill over into the next mandate, potentially with a different government.

c) Parliamentary Committee. Senate committees often address emerging public policy issues, while House of Commons committees tend to focus on legislative initiatives. Running a review through a parliamentary committee would clearly establish the corridor as a federal initiative, but at the same time would have the disadvantage of initially limiting other stakeholders' participation to the submission of briefs and testimony.

d) Green or White Paper. A green paper formulates ideas for discussion and modification while a white paper proposes a considered direction. This would provide a clear signal of the federal government's intentions at a significant level of detail, thereby taking the lead in Canada on both substance and its process. Nevertheless, it refrains from providing definitive direction which is based more appropriately on the outcome of consultations with stakeholders. Therefore, a green or white paper serves as a steering approach, allowing flexibility regarding questions of scope, timing and modalities.

Assessment

The options listed above are not mutually exclusive. For example, a First Ministers' Conference could be a prelude to a more detailed work by a designated arm's-length group, reporting back to first ministers. The rigorous analysis required to provide meaningful advice to first ministers would presumably be undertaken by a separate entity; for example, an intergovernmental committee or an existing federal department or agency tasked with supporting policy development for the CNC.

To varying degrees, all presented options share one common element: in-depth consultations with relevant stakeholders, a prerequisite to building national consensus. The Senate Standing Committee on Banking, Trade and Commerce held hearings and issued a report on the CNC concept in June 2017 (Senate of Canada 2017b). On the one hand, the Senate could extend that inquiry toward operational issues. On the other hand, the House of Commons committee process would be appropriate for reviewing new legislation related to the CNC, e.g., establishing a Crown corporation to oversee the project. Moving forward with legislation at an early stage of corridor development would, however, imply that the federal government had already determined how to proceed with the initiative and wanted to accelerate decision-making. Therefore, this option is more feasible following some form of consultative consensus building.

Regardless of which option or combination is chosen, key policy questions that need to be addressed at this stage include:

1. Do stakeholders agree that the establishment of a CNC right-of-way is a policy priority?
2. Has the business case for a new corridor been established, or is further analysis required before committing to collective action? If so, what are the most salient issues?

3. Is it necessary at an early stage to get agreement on respective roles and responsibilities among public and private partners, or is that an issue for negotiation over time?
4. Within the corridor, are there sections that merit early attention, or should the entire right-of-way be scoped out before dealing with implementation priorities?
5. How should environmental considerations be managed — within existing frameworks or through a special, dedicated corridor instrument?
6. Do project implementation mechanisms need to be developed in tandem with a right-of-way negotiation, or can they follow once a right-of-way is decided?

As a practical matter, the answer to these questions can best be arrived at through an iterative process based on a relatively detailed initial proposal developed through one or a combination of the mechanisms previously outlined. Such a proposal would need the federal government's approval, if it represents the endeavour's lead policy and funding role. That suggests the need for an early product like a federal green/white paper that brings together coherently all aspects of CNC development. Once that is accomplished, there will need to be a forum or forums for discussion and negotiation. In this regard, there are a number of alternative approaches:

- The federal government could engage in consultations with stakeholders on its preferred approach, leading to a report on results of the consultations and on possible changes to the approach, with subsequent recommendations on how to proceed;
- Alternatively, the federal government could take the view that adequate consultations had already taken place in developing its proposed approach, and it was time to move on to establishing a federal-provincial-territorial-Indigenous working group whose mandate would be to develop a consensus plan, with further consultations as necessary;
- A more assertive approach would be to establish a federally sponsored entity; for example, a task force headed by a prominent Canadian, which would lead the development of a consensus position.

The choice among these options, or variations thereof, will depend on the urgency, as well as the degree of ownership, the government of the day attaches to moving forward on the corridor concept. To a large extent, this will depend on the consultation outcomes with relevant stakeholders and the identification of urgent infrastructure needs in the North and near-North.

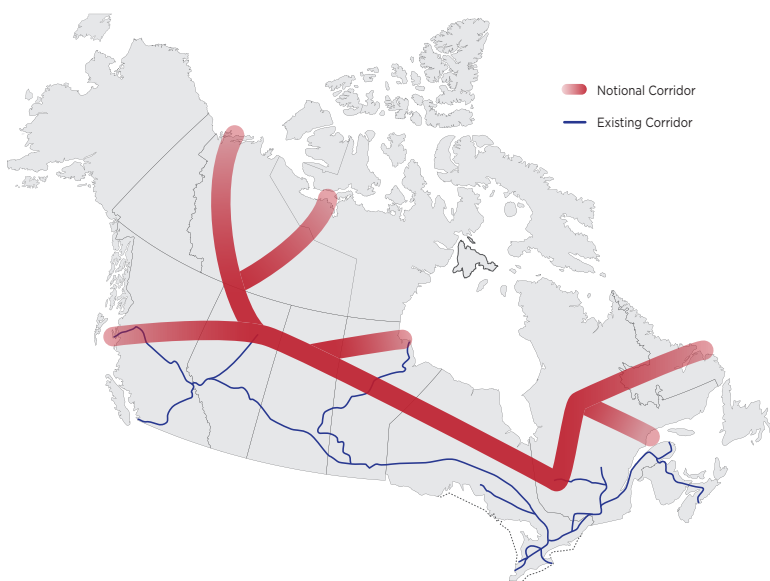
4.2. DECIDING ON A CORRIDOR ROUTE

The logic of sequencing separate stages for structuring CNC governance as set out in this paper will not necessarily be followed in reality. Various stakeholders may deem other issues to be more important. It is possible, for example, that before settling on broad contextual policy issues, stakeholders with land title rights, such as Indigenous

groups, will be more interested in negotiating CNC routing arrangements. The outcome of such discussions is unpredictable, but they can range from active pro-corridor lobbying to refusal or reluctance to accept a routing crossing their designated territory. Negotiations will be based on cultural, financial, structural and environmental factors.

In order to make corridor routing negotiations manageable, they could be divided into segments concentrating responsibility on relevant key stakeholders within a dedicated geographic area.

Figure 2. CNC Routing Options Connecting Four Coasts



a) Connecting the West Coast (i.e., Vancouver, Prince Rupert) with Hudson Bay (i.e., Churchill).

b) Connecting an Arctic port (i.e., Mackenzie River Valley) with existing southern or western infrastructure.

c) Connecting Hudson Bay (Churchill) with an Atlantic port (i.e. Newfoundland and Labrador).

A western route appears to be a priority in terms of maximizing potential new development and trade. It would not only provide improved access for Canadian products to Asian and European markets, but also establish Canada as an efficient trans-shipment route between Asia and Europe compared to, for example, the Panama Canal. An Arctic route is a long-standing priority for the NWT, although heretofore economically viable only with sustained higher prices for hydrocarbon resources. An eastern route, connecting the CNC with unexploited Ring of Fire mineral deposits, includes potential benefits for Ontario; however less so, from a Quebec perspective. The main governance options for the negotiation of a right-of-way, ranging from most to least formal, are:

a) Federal Crown Corporation. Oversees the development of an agreed right-of-way, potentially divided into separate segments, funded with technical resources that can inform legal, engineering, economic, social and environmental aspects of routing possibilities.

b) Not-for-profit Corporation. Members would include representatives of all interested stakeholders, also funded with the necessary technical resources to inform the process. The *Canada Not-for-profit Corporations Act* provides a formal but flexible set of rules for an arm's-length entity that represents the collective interests of all stakeholder groups (Department of Justice 2009).

c) Special Committee/s. Committee/s would be tasked with right-of-way negotiations among relevant stakeholders who would individually rely on technical support. This would be the most flexible option, albeit potentially too informal regarding regulatory procedures, funding and timelines.

Assessment

The choice among these options depends on a judgment of which is the most likely to allow stakeholders to reach consensus on just and efficient outcomes.

The Government of Canada represents the common interest and thus could lead the routing negotiations by establishing a legislatively based Crown corporation. The advantage is that Crown corporations are formal instruments with clear mandates based on legislation and offer clear direction regarding oversight and accountability (Government of Canada 1995). However, a Crown corporation may not be perceived as impartial by all stakeholders, especially Indigenous groups, thus diminishing opportunities for political discussions; the not-for-profit corporation model could help ensure a more overtly neutral decision-making process.

The not-for-profit corporation legislation carries the advantage that it provides clear guidelines and rules for establishment, management and oversight (Department of Justice 2009). The main advantage is that stakeholders have a better opportunity to be included in negotiations and become equal partners with significant decision-making responsibility. This instrument allows for flexible policy-making as it recognizes diverse political views, since decision-making power is dispersed among all stakeholders. However, all stakeholders need to carefully evaluate and support the funding model of a not-for-profit corporation. Further, the choice of the corporation's chairperson and senior staff would be important in ensuring a perceived lack of bias. In similar circumstances, an eminent, retired Canadian has served the process well, e.g., a retired businessperson, judge or academic.⁵

The third option is a less formal special committee which would be feasible if there is a collective interest in progressing with good-faith negotiations after having agreed in advance on the essential parameters. This may, however, prove to be ambitious as there are a number of jurisdictional, legal, technical and administrative issues to sort through that would benefit from a more formalized process. For example, stakeholders should expect challenging negotiations on land ownership issues, especially with respect to

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An example of this approach is the choice by federal and provincial governments to appoint a retired businessman as the neutral chairman for the original negotiations leading to an Agreement on Internal Trade in 1994 (Canadian Free Trade Agreement 2015).

unsettled land claims. This also entails engineering and other technical constraints, including environmental impact assessment.

Preliminary CNC routing options include achieving a right-of-way across Indigenous lands and thus a meaningful consultation policy has to be developed. Indeed, consultations are likely to segue into negotiations involving compensation for access to a right-of-way through various territories, e.g., First Nations, Métis and Inuit representatives, such as the MVLWB in the NWT. Other Indigenous groups include the Council of Yukon First Nations, which represents 14 First Nations under its umbrella agreement concluded in 1990 (Council of Yukon First Nations 1993). Though not legally binding, it is a political agreement made between the Government of Canada, the Council for Yukon Indians and the Government of Yukon on the settlement of land claims, land planning and compensation and generally managed government access in Yukon.

Furthermore, there are about 65,000 Inuit living in Inuit Nunangat, the homeland of the Inuit, which spans the NWT, Nunavut, northern Quebec and Newfoundland and Labrador. They are represented through the Inuit Tapiriit Kanatami, a national organization to protect and advance the rights and interests of Inuit across Canada. The organization is governed by leaders of Inuit right-holding land claims organizations and can be considered to be a broker between the Inuit and governments. The Inuit Tapiriit Kanatami is a non-profit organization founded in 1971 and is responsible for communicating a unified Inuit perspective on issues affecting the population as well as to ensure adequate consultation practices in circumstances where Crown decisions affect treaty rights. The organization provides policy advice; for example, regarding diminishing the infrastructure gap between Inuit Nunangat and the rest of Canada. This gap contributes to a variety of social and economic inequalities and thus is one of the primary goals of the new Strategy and Action Plan published in 2020 (Inuit Tapiriit Kanatami 2020, 10). The organization will participate in the implementation of the new Arctic and Northern Policy Framework and thus may also be crucial in CNC development.

To be considered is whether any detailed discussions of a preferred route should take place absent a comprehensive technical assessment of the most amenable routing options in the various segments of the CNC. For example, if one assumes that a roadway or rail line would be the initial building block of a multi-use corridor, there will be potential impediments related to surface topography, waterways and protected areas, among others, that will circumscribe routing possibilities. Ideally, this information should be known in advance, and a more formal structure would permit a rigorous, impartial analysis.

A related issue is the compensation regime for the various land titleholders along a potential route. Federal and provincial governments have long-standing expropriation legislation whereby private property can be designated for a right-of-way, subject to fair compensation (Department of Justice 1985). Presumably, compensation would not be an issue with respect to federal or provincial Crown lands and would apply only to Indigenous or private land holdings. In the latter case, there may be routing options at the margin to circumvent potentially intractable negotiations.

The other main issue with respect to compensation is what the sharing ratio for payments would be between federal and provincial/territorial governments and the phasing of those payments through the corridor development process. In this latter regard, the main compensation would presumably be paid once the building of transportation infrastructure actually commences. Without effective Indigenous participation, a successful negotiated outcome is highly unlikely as foretold by a conversation in the Senate of Canada in 2016 with the former director of the Australian International Mining for Development Centre, Ian Satchwell (Senate of Canada 2016).

The conversation focused on comparing structural challenges shared by the Pilbara corridor and a potential CNC in terms of geographical vastness, uninhabited regions and extreme climate as well as challenges resulting from climate change and consultation procedures. In this regard, Indigenous rights, codified in the *Australian Native Title Act* of 1993, were singled out as a main challenge in the development of new infrastructure. In general, Indigenous Peoples have the right to negotiate with a project proponent; however, this does not fully apply in the process of establishing infrastructure corridors. Satchwell notes that although negotiations are happening, the Australian government has not only the right to establish an infrastructure corridor but also to build infrastructure along it. In the CNC's case, this would suggest that, once the right-of-way is decided, the government can fast-track any mode of infrastructure, as negotiation and consultation processes would have already happened during the initial set-up.

In the Pilbara corridor, agreements among stakeholders, for example between the government and Aboriginals, are often achieved with the support of the Native Title Tribunal court and the Australian court system. Asked what happens to the negotiations if the affected parties fail to reach a common ground, Satchwell answered:

It can go on for a long time. The Native Title Tribunal can, up to a point, facilitate the negotiations, if not arbitrate. But, in general, there can be an agreement reached because the benefits packages that are now being negotiated go to the values that the Aboriginal people hold for their land, for their culture, but in particular for their children. Most of the modern agreements are very long term and intergenerational. They include not only financial compensation, but also packages around education, access to employment, access for their businesses, and recognition and protection of heritage sites and cultural value.

When deciding on a corridor route, the Government of Canada is obliged to recognize Indigenous land rights according to current legislation; however, in order to facilitate the negotiation process, it is not only important to negotiate in terms of economic benefits for the communities but also to analyze the long-term impact of establishing infrastructure within a certain region. However, in some cases where incomplete information is presented to community representatives, the project design may still change, even after the Impact Assessment Agency's final approval. In fact, Baker and Westman (2018, 150) state that "unbelievably, such examples show that in many cases, the most impacted community members are not receiving information about major projects that is final or authorities from their 'partners' in consultation." This shows

the shortcomings of consultation processes and also underlines the importance of Indigenous participation that should not be reduced to process.

Finally, assuming agreement has been reached on a preferred route with attendant engineering viability, a comprehensive environmental impact assessment (i.e., of roads/railways and power lines) would need to be carried out before implementation can actually commence. New pipeline capacity in the corridor would require an additional layer of environmental assessment, depending on the specifics of potential proposals, which could be undertaken pursuant to the current *Impact Assessment Act* (Department of Justice 2019).

All these considerations suggest there is a need for a dedicated forum, or forums, in which to negotiate the rights-of-way and associated terms and conditions. Whether that should be formalized into a corporate entity is the key question. On the one hand, a corporate entity would provide continuity for stages three and four. On the other hand, a less formal negotiating forum could be disbanded once a right-of-way is agreed upon.

4.3. REVIEWING AND IMPLEMENTING PROJECT PROPOSALS

The objective of the previous stage was to achieve agreement on a right-of-way, or several compatible rights-of-way, providing relative certainty for infrastructure investments within the corridor. This should reduce investor risk, and hence financing costs, particularly for private sector-led projects such as pipelines, and for various forms of partnership between government and business on roads, railways and electricity transmission lines. Such risk reduction would make long-term financing through patient capital, e.g., pension funds, more viable.

At the project proposal stage there is a fundamental choice to be made on governance structure and process: deploy existing institutions and regulatory processes, or establish a special corridor agency that reviews all projects within the designated right-of-way.

a) Federal/Provincial Crown Corporation(s). Crown corporations, both on the federal and provincial levels, have been a popular choice for infrastructure development, particularly roads, railways and waterways, across Canada. The advantage is that they offer services to the public which would otherwise not be financially viable for private corporations — particularly relevant in the sparsely populated North and near-North. They are often dependent on revenues and profits generated through their operations; although a few are non-commercial and rely on public funding.

b) Not-for-profit Corporation. Another option is a not-for-profit arm's-length group, which carries the advantage of enhanced stakeholder inclusivity and also allows for policy debate during its initial set-up and throughout its operations. The *Not-For-Profit Act* provides clear guidelines regarding its establishment, management and oversight. Funding arrangements would need to be negotiated.

c) Existing Institutions and Regulatory Processes. The benefit of using existing institutions and regulatory processes is that they are already equipped with the mandate to participate in decision-making procedures regarding infrastructure and transport development. An obvious advantage of such an approach is that this would save costs and time, especially if clear regulatory processes are already in place. In this regard, there are existing precedents for each transportation mode: roads, railways, pipelines, ports and transmission lines. Yet, in order to address the CNC's mandate, existing regulations and processes would probably still need to be modified and adjusted in order to be adapted to CNC governance models.

Assessment

Based on the infrastructure gap in the Canadian North and near-North, a practical scenario that ensures a degree of co-ordination would be to establish a new CNC Crown or not-for-profit corporation responsible for the review and implementation of individual projects within the corridor. This corporation should reflect the multi-modal and multi-stakeholder character of the corridor, with its members deployed from existing governmental institutions and associations, such as the Council of Yukon First Nations. Even if a Crown corporation were reporting formally to the federal level, its management and staff should reflect its sub-national character in order to ensure a well-informed review process.

Federal and provincial governments have frequently used the Crown corporation model; for example, in the case of the Confederation Bridge connecting Prince Edward Island and New Brunswick (Pirie 1997). They are established as agents of the government, fulfilling a public policy objective, but structured as independent companies with various degrees of operational independence and subject to parliamentary scrutiny through a designated minister.

In this regard, two options are available: (1) A Crown corporation that is responsible for all activity in the designated corridor, encompassing all potential modes, with responsibility for project approvals and the management of related contracts for construction, maintenance and repair, including potential P3s; or (2) A corporation with the mandate to establish one transport mode, i.e., a roadway, while leaving other modes subject to existing regulatory processes. The rationale for this approach is that a roadway is a public good that requires taxpayers support (even a toll road would need to be heavily subsidized in northern Canada) and would not otherwise be proposed by private interests, whereas other modes generally involve profit-seeking proposals from industry for which there are well-established processes.

Initially, there may be little practical difference between the mandates, on the assumption that a roadway would precede all other transportation infrastructure. However, leading with only a road-focused entity could preclude useful analysis of the potential synergies and cost-sharing with other modes, such as transmission lines and rail lines.

Perhaps the closest existing parallel to the governance model of a designated corridor agency is the St. Lawrence Seaway Management Corporation, a not-for-profit Crown corporation responsible for the safe and efficient movement of marine traffic through Canadian seaway facilities (Great Lakes St. Lawrence Seaway System 2020). The corporation is governed by a nine-member board, composed of its CEO and representatives from industry and the federal, Quebec and Ontario governments. It is accountable to the federal minister of Transport. Thus, the ownership rests with the Government of Canada. Furthermore, the Seaway involves partnerships with numerous stakeholders such as federal and provincial governments, vessel owners/operators, and port, terminal and shipyard owners.

The corporate model does not necessarily need to be implemented through a Crown corporation. The same results could theoretically be achieved through a not-for-profit corporation. Although federal legislation for this type of corporate organization is quite flexible, it implies a reduced role for governments relative to other stakeholder groups and potentially creates conflicts of interest for business participation. Perhaps more importantly, though, this model raises issues of transparency and accountability for the management of significant public funds, as governments may be in a minority position with respect to decision-making by the board of directors and oversight by the corporation's members.

In terms of precedent, a number of infrastructure projects discussed in this paper have been developed through formal structures and processes that combine operational independence with public accountability. A possible example to draw from is the ScanMed corridor in the EU which is governed by the Trans-European Transport Network (TEN-T) representing a number of infrastructure corridors throughout Europe. The goal is to close infrastructure gaps, overcome technical barriers and remove bottlenecks that impede the free movement of goods in the EU's single market by connecting networks of all transport modes (Bundesministerium für Verkehr, Innovation und Technologie 2016).

However, while the EU corridor model may be quite similar to the vision of the CNC, the major difference is that the infrastructure (i.e., roads, rail, shipping routes, etc.) was already in place. Furthermore, this corridor was mandated by the European Commission, a supranational institution with significant decision-making authority in the transport policy domain, overriding national legislations (European Commission 2014). The federal government does not have such an encompassing role in terms of infrastructure development, and policies are strictly implemented in co-ordination with the provinces and territories. Nevertheless, the ScanMed corridor offers an important structural framework which can guide the establishment of a CNC co-ordinator, secretariat and forum. For example, the ScanMed forum has a consultative role and includes the co-ordinator, EU member states and the stakeholders such as infrastructure companies.⁶ A similar design can be developed in the CNC context, in

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The European Commission has published a comprehensive stakeholder list, naming all involved partners from each member state (European Commission 2019).

the sense that the provinces and territories approve infrastructure proposals that are developed in collaboration with the federal government, industry and business leaders as well as Indigenous communities.

Using existing institutions and regulatory processes does, however, require modifications in order to adapt governance frameworks to the specific requirements of the CNC. Such modifications are possible through joint review panels, e.g., established by the CER in the context of new electricity transmission lines or pipelines. Similar joint review panels can also be set up with Transport Canada. Yet, from recent experience with the establishment of the *Environmental Impact Assessment Act* in August 2019, the formal review process lasted for over three years, as the government launched the process in June 2016 (Government of Canada 2019a). Thus, changing existing regulations and adapting them to the purposes of CNC development can be expected to be time-consuming and require significant funding in order to satisfy the requirements of review panels.

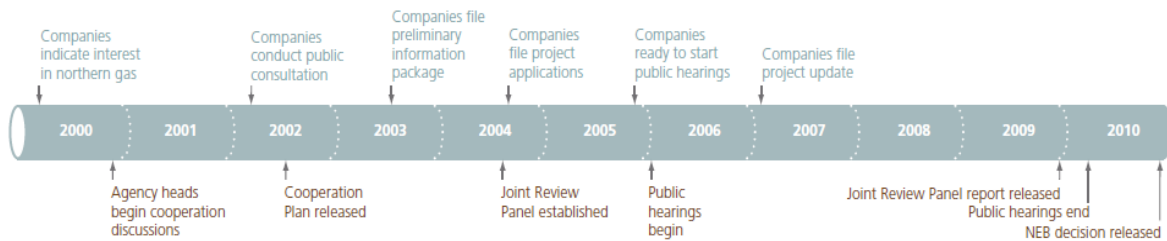
More often than not, consultation regarding specific infrastructure projects, for example pipelines, resembles a “stakeholder management approach” (Baker and Westman 2018, 146) which means that “project proponents inform relevant and affected First Nations (and sometimes Métis) communities of the proposed project before hiring an environmental consulting firm to complete a land use assessment as part of the environmental impact assessment.” However, Baker and Westman emphasize that this particular type of consultation is different from other public communications or approvals because the consultation process is separate from the signing of impact benefit agreements. The authors argue that “although a First Nation might negotiate with a company to financially support community development, agree to revenue-sharing, or guarantee contracts for First Nations companies, the First Nation can ostensibly express its concerns regarding project impacts to their traditional land use and Treaty rights.”

The often detected shortcomings throughout consultation processes with the Indigenous Peoples across Canada must be recognized and rectified, especially in the context of the CNC right-of-way. Too often, the participation of Indigenous Peoples, whether through formal consultation procedures or as part of advisory committees, has been criticized for lacking real impact because private corporate project proponents had not yet finalized plans on new infrastructure, such as pipelines (see Baker and Westman 2018; Huseman and Short 2012; Taylor and Friedel 2011). Thus, the review and acceptance of individual project proposals should also consider the level of completeness in order to allow relevant stakeholders, particularly Indigenous communities, to evaluate the projects accordingly.

Another issue refers to the implementation process itself. Once a routing of the CNC is decided, implementation should proceed in a timely manner. However, it remains difficult to anticipate in advance the location and time-frame of infrastructure development, especially with regard to individual project proposals and their approvals. The regulatory and consultation process of the cancelled Mackenzie Valley pipeline

lasted at least a decade (Figure 3). Furthermore, although the NEB granted approval in 2010, construction costs kept increasing and by 2017, the project was abandoned by the interested parties, which also included the Aboriginal Pipeline Group (Canada Energy Regulator 2010). Any implementation scenarios should recognize delays through regulatory reviews and consultation procedures.

Figure 3. Time of Mackenzie Gas Project Regulatory Review (Canada Energy Regulator 2010, 13).



A more recent infrastructure project is the NWT-Nunavut Grays Bay Road and Port project. In terms of transport infrastructure, this pending project may offer a more realistic glimpse into the challenge and timeline of securing funding for individual projects within the CNC. The project’s goal is to establish a connection between Canada’s natural resource-rich Slave Geological Province with an Arctic port (Grays Bay Road and Port Project 2016). The project’s key stakeholders in 2016 were the Government of Nunavut and the Kitikmeot Inuit Association (KIA). However, the Government of Nunavut pulled out in April 2018, and KIA is now solely bringing the project forward. Despite numerous issues regarding fundraising, project planning continues with the result that the Canadian Government pledged \$21.5 million to support the project in August 2019. However, up to now, the federal contribution only covered about five per cent of the total costs the project’s proponents were hoping to receive from the federal government.

The timing issue could be particularly fraught if the option of simply using existing authorities and instruments were chosen. This laissez-faire approach would essentially leave it up to proponents to decide when and where projects should be initiated. The result could well be inaction or un-coordinated action, much like the current situation for a number of transportation infrastructure projects, such as the Grays Bay Road and Port project. It could ultimately result in a stranded public investment in developing a right-of-way. The only way, therefore, for this option to be viable would be to have agreement in advance on priority projects for the CNC.

4.4. MANAGING ONGOING OPERATIONS AND OVERSIGHT

If the corporation option, whether government-owned or not-for-profit, were chosen as the instrument for project selection and review, for continuity it would make sense to also give it the mandate to oversee the operations of the approved projects, including responsibility for ensuring proper maintenance and repair. Project proposals within the

right-of-way could originate from public- or private-sector proponents, followed by a review through regulatory frameworks and then be subject to operational oversight by the corporation. The corporate model can take one of the two forms outlined previously:

a) Crown Corporation. Crown corporations serve the public interest in a commercial manner and thus have greater managerial autonomy than departments because they are expected to “function like their private sector counterparts without undue interference from government administrative policies and without preferential treatment vis-à-vis private firms” (Government of Canada 1995). As set out in the *Financial Administration Act*, they operate at arm’s-length from both ministers and public servants, and general government policies are provided as guidelines rather than rules.

b) Not-for-profit Corporation. The not-for-profit variant has the advantage of being independent of government control and, therefore, neutral in its administration. The corporation would be accountable to a board and members that represent all stakeholder groups.

c) Existing Institutions and Regulatory Processes. Similar to the implementation process discussed above, existing institutions and regulatory processes can also be used in the management of ongoing operations as well as to provide oversight. However, a possible disadvantage is that existing regulations and institutions may have to be modified to facilitate CNC development.

d) Independent Operations and Oversight Body. A variation on options a) and b) would involve a new entity undertaking operations and oversight following project approvals through a separate process. The advantage of bundling responsibility for project approvals with ongoing operations may be illusory, and a case can be made for separating the two in order to promote objectivity, reduce potential conflicts of interest and ensure accountability. Further, a separate entity would be required in any event if project decision-making were to be undertaken on an ad hoc basis using existing instruments rather than through a corporation. The most obvious structure for this separate entity would be a not-for-profit in order to maximize independence.

Assessment

Management and oversight of ongoing operations is a main element of democratic governance, giving stakeholders the capacity to hold decision-makers accountable for their decisions. Accountability translates into a stakeholder relationship in which an entity’s performance and actions are subject to the oversight of another. In addition, oversight includes two distinct elements: answerability and enforcement, both of which depend to a certain degree on trust. The relationship between accountability and trust has been a focus in governance research (Greiling 2014) as it is a key element throughout the implementation and management processes. The trust relationship will also be a crucial aspect throughout CNC governance.

Boyd and Lorefice (2019) have identified that the main stakeholder groups in the CNC will represent governments, industry and Indigenous Peoples. Therefore, managing

operations, including oversight and accountability, must ensure the participation of all three interest groups. As identified throughout the previous stages of CNC implementation, the choice among governance options on the management of ongoing operations and oversight depends on the value placed on the centralization of authorities and achieving the accompanying efficiencies and timeliness versus a more decentralized stakeholder approach. From a practical perspective, the functions of project review and approval, as outlined in Stage 3, can be treated separately from managing operations and oversight in Stage 4. Therefore, separate governance structures and processes in both stages would not unduly undermine the potential synergies of a more bundled approach.

Usually, major pan-Canadian infrastructure modes, such as rail and roads, are delegated to Transport Canada. Electricity transmission lines are generally the CER's responsibility. In the case of hydroelectricity, for example, generated through the Columbia River, oversight has been delegated to the BC Hydro and Power Authority with the support of Natural Resources Canada (NRCan) participating on the CRT's permanent engineering board to help oversee delivery of treaty commitments (Government of Canada 2020).

This shows that for the construction of roadways, railways, pipelines and energy transmission lines, Canada already has various instruments in place, both on the federal and provincial/territorial levels, such as Yukon Energy (2020) as the main transmitter and generator for electricity. The benefit includes relying on established processes of management and oversight and using the capacities of existing institutions and networks. However, there could be cases where provincial or territorial institutions do not have the capacity to include CNC infrastructure into their portfolios.

The Columbia River Treaty serves as an interesting infrastructure example for a variety of reasons. The treaty was signed in 1961 and ratified after a three-year delay in 1963. The delay was due to the negotiations between Canada and British Columbia, which delegated treaty management to the province. Besides this shift of management in the early 1960s, Indigenous Peoples were not included in the consultation process regarding the construction of the dams generating hydroelectricity along the river. Naturally, during the current decade-long review process of the treaty, which will be renegotiated in 2024, Indigenous communities advocate for their interests in both Canada and the U.S. Although the Okanagan Nation Alliance (2018) announced in early March 2018 that Global Affairs Canada would exclude the Ktunaxa Nation, Secwemec Nation and Syilx Nation from the negotiations, the Government of Canada announced in April 2019 that they would be participating as observers:

The original Columbia River Treaty in 1964 excluded our Nations, and wreaked decades of havoc on our communities and the basin. Canada's unprecedented decision to include us directly in the US-Canada CRT negotiations is courageous but overdue and necessary to overcome the decades of denial and disregard. We welcome the government's bold decision here and look forward to helping to ensure any new Treaty addresses the mistakes of the past." – Grand Chief Stewart Phillip, Chair, Okanagan Nation Alliance. (Government of Canada 2019b).

Although this does not imply full participation, it was reported in November 2019 that Indigenous Peoples were invited to present their concerns on salmon and ecosystem restoration.

In order to ensure adequate CNC management of ongoing operations and to develop an effective strategy of overseeing operations which recognizes Indigenous stakeholder participation, management can be delegated to sub-national authorities, such as BC Hydro and Power Authority, serving as an arm's-length provincial Crown corporation. The key to accomplishing appropriate oversight and accountability is the early participation of affected Indigenous stakeholders.

5. OVERALL ASSESSMENT AND EVALUATION

The parsing out of the various stages of corridor development and implementation is a useful analytical tool, but decisions on the ultimate governance structures and processes need to be guided by a coherence criterion. In this context, Sabatier and Mazmanian (1979, 484) have developed five conditions under which policy implementation achieves this objective and which are the basis for our guiding principles in Section 3. Although the authors developed these conditions nearly five decades ago, they still offer useful insight into the development of a policy framework and help in understanding basic prerequisites for effective implementation processes; this may guide best policy practices in the CNC context and ensure progress from a governance perspective:

The first condition establishes that target-group behaviour relates to the achievement of key objectives. This means that the CNC stakeholder network must come to agreement on common objectives. In this regard, it will be useful not only to identify common interests and goals but also to detect and address early on any points of dissonance. Transparency of negotiations and consultation processes will, therefore, be a key requirement for corridor progress.

The second condition relates to the agreement on unambiguous policy directions and structuring the implementation process in a way that supports and favours the collective efforts of stakeholders. Once again, the consultation and negotiation processes require transparency and clarity about future policy directions by federal, provincial or territorial governments, with an emphasis on inclusivity of other stakeholders, particularly private corporations and Indigenous communities.

The third condition relates to the expertise and skills of the program leaders and their respective agencies. They must possess a high level of managerial, political and diplomatic skills. Without a doubt, a large-scale infrastructure network such as the CNC also requires input from a variety of experts. This includes panels and committees of external advisors from a variety of backgrounds, i.e., Indigenous, legal, engineering, business and scientific. In order to understand the challenges, an interdisciplinary team will be required to advise policy-makers on formulating the policy frameworks and subsequent implementation processes. It will be important

early on to identify potential conflict of interests by private and public stakeholders in order to prevent possible litigation.

The fourth condition stipulates that, while courts should remain neutral, key government stakeholders must support the policies and programs throughout the process, which is expected to last beyond electoral cycles. However, for the CNC's progress, the initial policy framework needs to gain broad consensus from all stakeholders in order to ensure sustainability, but it also must be flexible enough to withstand political changes. The implementation phase is crucial to secure the active participation of private actors and other stakeholders, in particular of Indigenous communities. At the same time, any other relevant constituency groups should be included in order to ensure a fair process.

The last condition relates directly to time. As previously discussed, the CNC program will extend beyond the electoral mandate of any current government. Indeed, the establishment of the CNC will take decades to achieve. Therefore, an enduring policy framework will need to be flexible enough to consider changing socio-economic, environmental and political circumstances over time.

Recognizing the above, best-practice requirements offer basic prerequisites for CNC development. Yet, a number of practical issues still need to be sorted through in order to arrive at a set of governance approaches for more detailed consideration.

Throughout the analysis, following a government-led overall policy framework process, two main approaches reflect philosophical poles on governance: a single corporation mandated to drive all three corridor implementation stages (routing, reviewing, managing and oversight) or a decentralized, existing-instruments regime that responds to demands from stakeholder groups as they arise.

There is also the possibility of a hybrid approach, whereby centralized and decentralized governance models would apply to different stages of implementation. Under this approach, the process of deciding on an overall corridor route, or different segments of the corridor, could perhaps be best achieved through an inclusive committee process that recognizes decision-making is as much political as it is technical.

The same decentralized approach could apply in the next phase to the review of project proposals, since existing instruments are already in place for the various modes. The management and oversight phase does not, however, lend itself to a decentralized approach, which would be the antithesis of an integrated multi-modal corridor. Here, a single entity would probably serve best.

In arriving at a preferred choice, answers to the following questions could serve as a useful guide:

Stage 1: Should the federal government take the lead in promoting a new corridor, in consultation with provincial and territorial governments, Indigenous groups and other stakeholders; and if so, what are the best means of doing so? If not, who else can lead?

Stage 2: Should the establishment of a preferred route be negotiated among governments with input from other stakeholders, or should that be delegated to a designated entity to negotiate among all stakeholders?

Stage 3: Should geographic priorities and the early lead transportation mode be decided in principle at an early date, including their funding and potential revenue streams, or should that wait until demand, in the form of project proposals, becomes more apparent?

Stage 4: Who will be accountable for implementation and management once the multi-modal right-of-way is finalized?

A review of the various governance options at successive stages of CNC implementation suggests there are potential trade-offs between timeliness and inclusivity, efficiency and thoroughness, technocratic solutions and enduring political outcomes. Different stakeholders will also, no doubt, sometimes have opposing preferences on these issues, making ultimate consensus a challenge.

One set of options would involve establishing a Crown or arm's-length corporation with the authority to negotiate an agreed-upon right-of-way, manage related compensation for land-title holders, undertake required technical and environmental reviews, and develop priorities for segmenting and phasing of infrastructure modes. The corporation would also review project proposals and evaluate bids while monitoring compliance with contracts and audits as required. The maintenance and repair of transportation infrastructure would be the responsibility of project proponents according to contractual obligations unless otherwise decided.

A further non-trivial consideration is whether the corporation should be a federal Crown or an independent not-for-profit. Although the latter choice would probably appeal to stakeholders concerned about undue federal control, it would also likely create conflicts of interest among stakeholders who have a legitimate interest in being involved in decision-making while at the same time being proponents of particular self-interested directions. This could be particularly acute with respect to the adjudication of specific project proposals. In this regard, the federal government's agent, the Crown corporation, would likely be the most neutral party.

The other set of options would be for a more decentralized and independent stakeholder approach, recognizing the autonomy of stakeholder groups and placing a premium on negotiated rather than technocratic outcomes. Although on its surface this approach could result in gridlock, paradoxically, it could also result in a more efficient process if all parties engaged in good faith based on an agreed set of objectives. Indeed, in order to adapt current regulations to potential CNC governance requirements, lawmakers may need to make significant changes to existing regulations in order to accommodate the large-scale CNC project; for example, in terms of environmental impact assessment, consultation and participation procedures with Indigenous Peoples. Changing or passing new legislation involves an extensive

stakeholder network to plan, draft and revise policies. The planning phase especially involves extensive research in order to define policy objectives that actually address key issues of CNC governance, implementation, management and oversight.

This research process is expected to last several years, especially in the CNC context which may ultimately require an entirely new legislative basis due to its vast extent across the Canadian North. Nevertheless, using frameworks that are already in place, such as the environmental impact assessment, offers a feasible basis for CNC development and how environmental assessment could be executed based on the principles laid out in the act. Also, careful revision of the procedures is required in order to identify unique CNC requirements potentially not included in existing regulations.

One way of sorting through these different approaches would be to put forward different scenarios. One likely scenario would entail building a roadway, not only because of its obvious multi-purpose utility but also as a facilitator for the construction of subsequent modes. As a public good, most roadways have been built and maintained by governments (a toll-based system in the North and near-North would need to be heavily subsidized with public funds). For example, the Trans-Canada Highway system was funded through cost-sharing agreements among the federal and provincial governments (The House of Commons of Canada 1949). In the case of a new corridor road, this would involve the negotiation of an intergovernmental agreement, or agreements with each jurisdiction, without necessitating a new layer of organization. The tendering process for construction could be managed through established government procurement processes.

If another mode were chosen, e.g., railways or pipelines, they are by their nature profit-seeking ventures backed by private-sector investors, with limited rationale for public funding. For example, although once a Crown corporation until its privatization in 1995, the Canadian National Railway now operates as a full-fledged private company, traded on the stock exchange. If railway companies established that there was a reasonable return on investment (ROI) for a new line in the CNC, they could apply through existing authorities. The same applies to pipelines. The risk, of course, is always that the anticipated ROI is insufficient to justify proceeding without additional public support.

However, the Canada Infrastructure Bank (CIB) could be an ideal corporation to support potential infrastructure development in the North, particularly because it carries the mandate to invest and attract funds in regions of significant public interest for infrastructure development that would enhance prosperity, improve living conditions and the sustainability of Canadian infrastructure (Department of Justice 2017, 3). The CIB pledged a total of \$35 billion in federal funding to four sectors: public transit, trade and transportation, green infrastructure and broadband infrastructure. At the same time, private-sector investment is a crucial requirement as well as revenue generation and risk management (Canada Infrastructure Bank 2020).

By way of example, the renewed push for a pipeline in the Mackenzie Valley was eventually cancelled because of a below-threshold ROI that was not enhanced through

government support. Under this latter scenario, it is not evident that any infrastructure activity in the CNC would be promoted by the private sector absent substantial public incentives beyond the establishment of a right-of-way. This is the risk for governments in proceeding with a CNC right-of-way and then waiting for project proposals that may not materialize.

The only way to mitigate this risk is for governments to be proactive in promoting infrastructure development, either through various incentives or through the initial development of a roadway that reduces costs for subsequent investments in other modes. Indeed, a roadway may be justified in its own right for the foreseeable future as a desirable public investment that reduces costs and promotes development and trade in the North and near-North.

Given all the uncertainties these scenarios expose, a prudent approach to CNC governance in stages three and four following the establishment of a right-of-way would be to use existing instruments as much as possible, thereby obviating investment in structures and processes that might be under-utilized.

Although there is always room for debate, a potential overall approach to governance structures and processes in the CNC is as follows:

1. The federal government makes a major policy statement, potentially in a speech from the throne, of its desire to promote a multi-year initiative for the development of a new, pan-Canadian transportation corridor.
2. The federal government designates a lead minister to engage with provincial and territorial governments and Indigenous groups in order to determine their interest in the initiative, potentially culminating in a First Ministers' conference.
3. The lead minister, following consultations with provincial and territorial colleagues, prepares a white paper that outlines a federal position.
4. The white paper is then subject to broader consultations with stakeholders, and a consensus agreement is developed through these discussions, culminating in a formal memorandum of understanding as the blueprint for subsequent implementation.
5. The federal government convenes a committee of government and Indigenous stakeholders (with private-sector observers) that is mandated to develop recommendations for first ministers on the route for a corridor right-of-way or rights-of-way, along with an agreed compensation regime for landowners.
6. In tandem with considering recommendations on the proposed right-of-way, governments discuss (with Indigenous and private-sector input) priorities for corridor implementation in terms of location and transportation mode.
7. Initial investments in the CNC are developed, reviewed and approved through existing instruments.

8. Once a sufficient level of activity takes place in the CNC, governments consider whether progress would be facilitated through the establishment of more formal governance structures and processes, i.e., the designation of a special corporate entity (a Crown or not-for-profit).
9. Consistent with overall policy direction, the corporation is given the mandate to issue RFPs for new transportation infrastructure, review proposals, let construction contracts and monitor progress. Public accountability would be structured in accordance with requirements related to the corporate structure.
10. Should a management corporation as outlined above not be deemed appropriate, at a minimum, an independent CNC operations and oversight body is established for broad accountability.
11. The responsible federal minister reports annually on CNC progress and makes recommendations for further action by governments and other stakeholders.

6. CONCLUSION AND NEXT STEPS FOR RESEARCH

The purpose of this paper has been to provide a conceptual framework for the consideration of governance structures and processes related to the development of a new CNC. “Conceptual” is the operative word since there is virtually no real-world guidance on governance parameters for a CNC from key stakeholders in Canada, be they governments, industry, Indigenous communities or advocacy groups.

To assist the discussion, the paper has reviewed relevant existing infrastructure and transportation governance regimes in Canada and internationally, including both large- and small-scale projects. They provide useful models for scoping out possible approaches and specific options.

There are different, seemingly viable, alternatives to CNC governance. At its starkest, that choice is between centralized, top-down and disaggregated, bottom-up sets of structures and processes. Parsing out CNC governance into four phases, from the policy framework through to implementation and oversight, also reveals that there is room for a mixture of centralized and disaggregated approaches that are potentially suitable for each phase.

The overall assessment section of the paper sets out a hybrid approach involving top-down leadership at a policy level in order to build momentum, followed by a more bottom-up approach on key implementation issues, and then followed by some level of aggregation on reporting and accountability. This is, of course, only one approach, trying to balance an overall CNC vision with pragmatic and flexible implementation. However, a number of other governance options and scenarios are feasible

With all these variables, it is difficult to assess, in the absence of extensive consultations with key stakeholders, which overall governance package would work best. That is an obvious next step, perhaps through a symposium involving senior

representatives from those stakeholder groups identified in this paper. Such a symposium should not be expected to arrive at an immediate consensus, but it would provide important input on initial preferences and could help identify elements of a future research project on CNC governance.

In this regard, further research priorities include the following:

- Given the likely decades-long implementation, the creation of detailed scenarios for CNC development in terms of geographic and modal priorities, and then evaluation of the likely timeline and performance trade-offs of various governance structures and processes for those scenarios;
- An up-to-date inventory and assessment of actual and proposed transportation infrastructure projects along the notional CNC to assist in determining complementarity, overlap and duplication of potential governance regimes;
- A more in-depth assessment of the views of Indigenous communities, the rights-holders who are arguably the most diverse in their interests. In testimony before the Senate Banking, Trade and Commerce Committee in 2017, Indigenous representatives were generally favourably disposed toward a CNC, but much has happened since then on transportation infrastructure issues. A more up-to-date assessment of current positions would help inform governance choices best suited to responding to those views.
- A research project that scopes out in detail and assesses the relative merits of a Crown corporation or a not-for-profit as the key governance structure.

Refinement of and additions to these research topics could take place following an assessment of the results of the proposed multi-stakeholder symposium.

7. ANNEX

Table 2. Case Study Overview

INFRASTRUCTURE PROJECTS & AUTHORITIES	MANDATE	GOVERNANCE	STAKEHOLDERS	FUNDING & TIMELINE
Mackenzie Valley Pipeline and Aboriginal Pipeline Group <i>Cancelled</i>	Transport natural gas from the Beaufort Sea through NWT and to connect with pipelines in northern Alberta. Total length of pipeline: 1,220 km.	Private energy corporations sought approval from the Government of Canada and the NEB, including Indigenous groups.	Private energy corporations; Aboriginal Pipeline Group; Government of Canada & National Energy Board (NEB).	March 2011: Federal cabinet approval; by 2016, projected costs were \$16 billion. Project cancelled in 2017.
Gray's Bay Road and Port Project <i>In Planning</i>	227-km all-season road between the northern terminus of the Tibbitt-Contwoyto winter road to a deep-water port at Gray's Bay at the Northwest Passage.	Governmental initiative from Nunavut and Kitikmeot Association. Partnerships with private sector and industry.	Government of Nunavut and the Kitikmeot Association (KIA).	Proposed in 2012; construction costs estimated at \$500 million;
Mackenzie Valley Land and Water Board (includes Gwich'in; Sahtu; Wek'èezhii LWB).	Regulatory authority to carry out reviews and make decisions on land claims that have not been settled in the regions.	Independent, public board based on <i>Mackenzie Valley Resource Management Act</i> (MVRMA). Reports to and is nominated by the federal minister of Indigenous and Northern Affairs (INAC)*.	MVLWB Chairperson Five members each of the Sahtu, Gwich'in, Wek'èezhii Land and Water boards; Four members of the MVLWB.	Funded by the Government of Canada. Proclaimed December 22, 1998.
International Joint Commission Bi-national Institution between Canada & U.S.	1. Approves projects that affect water levels and flows across the border. 2. Investigates transboundary issues and recommends solutions on water use.	Commissioners represent the commission and not the government.	6 Commissioners (3 CDN/3U.S.); Staff members of Canadian & U.S. sections; Great Lakes office staff members; several quality & advisory boards and ad hoc task forces.	Guided by the Boundary Waters Treaty signed by the federal governments of Canada and the U.S. in 1909.
Columbia River Treaty	Water management agreement to address flooding concerns and hydroelectric power generation with the construction of dams.	Ratification by the Canadian and U.S. governments in 1964; Indigenous consultations sub-standard during the 1960s; Canada-B.C. agreement to clarify authority in Canada.	Federal governments of Canada and the U.S. Provincial government of British Columbia.	Signing: 1961 Ratification: 1964 Canada received upfront U.S. payment of \$64 million.

INFRASTRUCTURE PROJECTS & AUTHORITIES	MANDATE	GOVERNANCE	STAKEHOLDERS	FUNDING & TIMELINE
St. Lawrence Seaway Commission	A bi-national partnership between the U.S. and Canada serving as a major shipping route from the Atlantic Ocean to the Great Lakes.	Crown corporation (Canada) & federal U.S. government	Numerous stakeholders ranging from the federal government to state/provincial governments to the private sector.	Negotiations began 1890s - established 1954 C\$630 million US\$130 million
Pilbara Corridor (Australia)	A resource corridor focused on bringing Australia's energy and minerals to market.	Framework initiated and managed by the Australian government.	Major stakeholders: Government of Western Australia, BHP Billiton, Rio Tinto.	Development began in the 1960s.
ScanMed Corridor (European Union)	The goal is to close infrastructure gaps, overcome technical barriers and remove bottlenecks within the European Single Market. The corridor reaches from Scandinavia to the Mediterranean Sea.	Framework initiated by the European Commission in close consultation with the EU member states and relevant transport & infrastructure stakeholders.	Forum of 188 EU stakeholders in dialogue with a co-ordinator appointed by the European Commission.	Community guidelines released by the EU Parliament in 1996. Several rounds of reviews and re-structuring with all relevant stakeholders; latest review commissioned in April 2019.

***Except Tlicho nominees who are appointed by the Tlicho Government.**

1. MACKENZIE VALLEY PIPELINE AND ABORIGINAL PIPELINE GROUP

The Mackenzie Valley pipeline was designed to transport natural gas from the Beaufort Sea through the NWT and to form a connection with the pipelines in northern Alberta. The project intended to build pipelines on Indigenous territories capable of transporting natural gas from three fields in the Mackenzie Delta for delivery to markets in Canada and the U.S. It was also intended to develop northern Alberta's oilsands industry (Nuttall 2008, 618). Planning of the Mackenzie Valley pipeline began during the 1970s with the Mackenzie Valley Pipeline Inquiry (Berger 1978, 639). This inquiry included an extensive assessment of the environmental, economic and social impacts of a pipeline through Yukon. Justice Thomas Berger, who commissioned the inquiry in 1974, travelled through the northern regions in Yukon and the NWT to meet with representatives from the Dene, Métis and Inuit, and held hearings in Yellowknife.

In his final recommendation, Berger suggested a 10-year moratorium in order to settle land claims and to deal with critical ecological issues. Gamble (1978) predicted that this decision had a lasting and profound national influence as the inquiry had inherited a national character due to the participation of stakeholders from both the North and the South of Canada. In this way, the Mackenzie Valley pipeline was identified as a crucial infrastructure development project which would benefit the entire Canadian economy.

After Berger's recommendation of a moratorium, research on a potential gas pipeline continued throughout the 1980s and 1990s. In the meantime, Indigenous groups settled numerous land claims in the NWT; for example, by the Inuvialuit, Sahtu and Gwich'in. In 2003, private corporations once more sought to build a pipeline in the context of a larger Mackenzie Gas project (MGP). In June 2003, the Mackenzie Valley Pipeline

Limited Partnership (Aboriginal Pipeline Group) negotiated and joined with a producer group that included Exxon Mobil Canada Properties, Shell Canada Ltd., Imperial Oil Resources Ventures Ltd. and ConocoPhillips Canada Ltd. Together, they submitted an information package to the NEB about their research and proposals which the environmental impact assessment and regulatory authorities accepted in June 2003 (Impact Assessment Agency of Canada 2003).

In December 2003, the National Energy Board, the Mackenzie Valley Land and Water Board, the Northwest Territories Water Board, the Mackenzie Valley Environmental Impact Review Board, the Inuvialuit Game Council, the Canadian Environmental Assessment Agency and the Department of Indian Affairs and Northern Development signed a memorandum of agreement, establishing the Northern Gas Project Secretariat (Canada Energy Regulator 2003). In 2004, the federal, territorial and Indigenous governments established a joint review panel to hold public hearings and assess the proposal. The assessment procedure was based on five basic principles: contribution to sustainability, use and respect for traditional knowledge, recognition of land claim agreements and treaties, recognition of diversity and a precautionary approach (Gibson 2011, 234-235).

The panel's reporting phase took several years, including several rounds of consultations and many years of data gathering, research and analysis of the Mackenzie's impact on the environment and Indigenous communities. Gibson (2011, 242) argues that "the Mackenzie panel's work was especially exemplary in its focus on cumulative effects, its attention to equity and legacy issues, and its recognition that the overall pace and scale of development would be more powerful determinants of impacts than the particulars of the project as proposed."

After various hearings throughout 2010 in Yellowknife and Inuvik between local communities and the NEB, the Mackenzie Valley Pipeline project was granted federal approval on March 11, 2011. After an extension for construction to begin in 2022, granted by the NEB in 2016, the pipeline's construction costs had risen to \$16 billion. As a result of this steep increase, as well as unfavourable gas market conditions, the private corporations, led by Imperial Oil, cancelled the project in December 2017 and the stakeholders' partnership was dissolved. However, the Canadian North remains an important potential source of future energy under the right economic and regulatory conditions (Canadian Consulting Engineer 2018).

2. GRAYS BAY ROAD AND PORT PROJECT

The Grays Bay Road and Port project aims to connect the mineral resources of Canada's Slave Geological Province, straddling Nunavut and the NWT, with Arctic shipping routes. The goal is to build a 227-kilometre all-season road that links the northern terminus of the Tibbitt-Contwoyto winter road to a deep-water port at Grays Bay on the Northwest Passage (Grays Bay Road and Port Project 2016). The goal is to attract private investment in the Arctic regions to support future resource development projects that transport Canadian commodities to new global export markets. Port

access along the Northwest Passage will significantly facilitate shipping of Canadian commodities (Sulzenko and Fellows 2016, 17).

The expectation in 2016 held that Canada's gross domestic product (GDP) would increase by \$7.6 billion and Nunavut's GDP by a total of \$5.1 billion. In addition, it was expected that living conditions across Nunavut and the Northwest Territories would significantly improve, especially due to a better connection between Yellowknife and Arctic shipping routes. This would, in turn, improve food security and overall living costs in Canada's Arctic regions (Senate of Canada 2018, 5).

The estimated construction cost was \$500 million. Although the infrastructure will be considered as a public good and accessible to all interested stakeholders, both the Government of Nunavut and KIA expected that private funding would not suffice. Instead, both stakeholders envisioned partnerships between the federal, territorial and provincial governments as well as with industrial partners and communities and to raise funding from each stakeholder to realize the project. However, the Government of Nunavut and KIA recognized that federal support is paramount and thus expect 75 per cent of funding to come from the federal level while the rest would be the responsibility of the Government and Nunavut and KIA (Senate of Canada 2018, 6). However, after failing to secure 75 per cent of the federal funding, the Government of Nunavut pulled out of the project in May 2018. Although the Government of Nunavut had financially supported environmental assessment procedures, it is currently up to KIA to secure funding.

3. MACKENZIE VALLEY LAND AND WATER BOARD

The Mackenzie Valley Land and Water Board (MVLWB) is a regulatory authority which was established with the *Mackenzie Valley Resource Management Act* (MVRMA). The regulatory resource management system in the Northwest Territories is based on an integrated resource management system and is governed through the act that has created, and provides authorities to, a number of boards to carry out land-use planning, regulate the use of land and water, and conduct environmental impact assessments. For continuous monitoring, it has created a Cumulative Impact Monitoring Program (CIMP) and an environmental audit every five years (MVLWB 2019, 4).

Four land and water boards cover the Mackenzie Valley region in the Northwest Territories across different jurisdictions: the Gwich'in Land and Water Board (GLWB); Sahtu Land and Water Board (SLWB); Wek'èezhii Land and Water Board (WLWB) and the Mackenzie Valley Land and Water Board (MVLWB). Their roles and responsibilities include regulating and managing the use of the land and water as well as depositing waste through fair, effective, inclusive and transparent processes. The goal is to ensure effective usage of land and water resources for all Canadians but in particular for Mackenzie Valley residents.

The Gwich'in, Sahtu and Wek'èezhii land and water boards act as regional panels of the MVLWB in issuing land-use permits and water licences on public and private lands for

activities that take place wholly within their respective management areas. The MVLWB exercises similar powers for activities that take place in more than one management area or wholly outside any management area.

4. ST. LAWRENCE SEAWAY AND INTERNATIONAL JOINT COMMISSION (IJC)

The St. Lawrence River is the second largest river by discharge, and the third longest in North America. Draining from the Great Lakes, the river is the largest freshwater system in the world and serves as the outlet for Lake Ontario (Clamen and Macfarlane 2018). Negotiations for a deep waterway and hydroelectric project through the St. Lawrence River date back to the 1890s and were a leading factor in the development and signing of the Boundary Waters Treaty (BWT) between the United States and Britain on behalf of Canada.

The BWT outlines that the concurrence of both Canada and the United States, and the International Joint Commission (IJC), a commission created in 1909 upon the signing of the BWT, should prevent flooding due to fluctuating water levels and the cyclical nature of natural circumstances in both Canada and the U.S. (Clamen and Macfarlane 2018, 417). The IJC is made up of six commissioners, three appointed from each country. They prevent and resolve disputes and are intended to act on behalf of the common interest, not as representatives of their country, in order to remain independent.

The negotiations took over 50 years to complete, including two failed treaties in 1932 and 1941. Canada also attempted to create an all-Canadian seaway, but the U.S. blocked it as it was considered harmful to American economic and security interests (Clamen and Macfarlane 2015, 213). The *St. Lawrence Seaway Authority Act* and *International Rapids Power Development Act*, both signed in 1951, allowed Canadians to begin navigation works on the Canadian side, and the U.S. commenced work as well (United States Department of Transportation 1951). These acts form the basis of Canada-U.S. co-operation.

In 1952, an agreement was struck between Canada and the United States on behalf of New York State and the Province of Ontario, who would jointly build and operate the hydro-power project along with the Hydro-Electric Power Commission of Ontario (HEPCO) and the Power Authority of the State of New York (PASNY). The IJC approved this agreement and established the International St. Lawrence River Board of Control to oversee water levels (Clamen and Macfarlane 2018, 417). Then through a bilateral agreement in 1954, not through the IJC, Canada reluctantly agreed to construct a joint seaway with the United States (Clamen and Macfarlane 2015, 217).

In 1954, an Act of Parliament established the St. Lawrence Seaway Authority, eventually becoming the St. Lawrence Seaway Management Corporation, with the mandate to acquire lands and bridges between the Port of Montreal and Lake Erie to develop the seaway (Great Lakes St. Lawrence Seaway System 2020). The seaway's construction involved moving over 210 million cubic yards of earth and rock, as well as 225 farms, seven villages, 18 cemeteries and roughly 1,000 cottages. Environmental issues were

of no concern to the entities involved, as there was no compulsory environmental legislation (Clamen and Macfarlane 2015, 218-220).

Among the many government entities involved in building the St. Lawrence Seaway, the agreement in 1954 established two corporations to administer it (Macfarlane 2015). The Canadian corporation is the St. Lawrence Seaway Management Corporation (SLSMC), a non-profit that manages the 13 Canadian locks of the 15 locks constructed on the seaway between Montreal and Lake Erie. The ownership of the Canadian portion of the seaway rests with the federal government. The American corporation is the Saint Lawrence Seaway Development Corporation (SLSDC), which is a federal agency within the U.S. Department of Transportation. It manages the two American locks, and operates and maintains the region between the Port of Montreal and Lake Erie within the territorial limit of the United States.

These corporations communicate and co-ordinate on a 24-hour basis due to the seaway's bi-national nature. They co-ordinate operational activities, particularly concerning rules and regulations, day-to-day operations, traffic management and trade development programs. The U.S. Coast Guard (USCG) and Canadian Coast Guard (CCG) are also key players in seaway operations. They partner with the SLSDC and SLSMC for icebreaking operations, and the CCG maintains the navigation aids in the Canadian canals and waterways. The USCG maintains the navigation aids within the Great Lakes and adjacent waterways, but the SLSDC maintains those in the seaway (United States Department of Transportation 2017, 6).

The St. Lawrence Seaway also involves public-private relationships with hundreds of stakeholders. The U.S. Department of Transportation divides these stakeholders into infrastructure operators; non-port federal, state, provincial or bi-national government entities; vessel owners/operators; port, terminal and shipyard owners (these are public, quasi-public or private entities); service providers and major shippers (United States Department of Transportation 2017, 7-8). The long list of stakeholders, as well as the numerous agencies involved in the seaway, is a challenge for operations as they play both formal and informal roles in its governance (United States Department of Transportation 2017, 31).

5. COLUMBIA RIVER TREATY

The Columbia River is the largest river in the Pacific Northwest, and the fourth largest in the United States. Its headwaters begin in the Rocky Mountains of British Columbia, Idaho and Montana and it produces more hydroelectric power than any other river in North America (Cosens 2016). The Columbia Basin encompasses parts of seven U.S. states (Washington, Oregon, Idaho, Montana, Nevada, Utah and Wyoming) and a portion of British Columbia. The river's significant year-to-year variability in runoff led to increased demand for upstream storage facilities to prevent flooding and balance the natural hydrograph (Cosens 2016).

The Columbia River Treaty (CRT) became the tool to achieve this goal. The CRT was signed in 1961 and ratified in 1964 (Hyde 2010, 1). The three-year delay was due to the negotiation of the Canada-British Columbia Agreement, signed in 1963. The Boundary Waters Treaty and the IJC provided a basis for dealing with transboundary water issues but had limited authority to provide what was required from both countries in the Columbia Basin. The CRT was created to address those concerns (Altingoz et al. 2018, 51).

Under the CRT, Canada is responsible for construction of the dams within Canada, receiving all the benefits (flood control and power) that come from those dams. However, both countries receive the same benefits earned from the U.S. dams (Altingoz et al. 2018, 52). This is referred to as “Canadian entitlement” and is a firm obligation of the U.S. government (Hyde 2010, 6). The CRT has no expiration date, but changes can be made at any time if mutually agreed upon. Unilateral terminations of portions of the CRT may begin in 2024, which is the end of the agreed-upon 60 years of flood control, but notice must be provided 10 years in advance (Cosens 2016).

Two main entities govern the CRT. On the Canadian side, the federal government appointed the British Columbia Hydro and Power Authority as its CRT entity. To implement the treaty, the Canada-British Columbia Agreement of 1963 was struck between the governments of Canada and British Columbia, assigning most of the CRT rights and obligations to B.C. However, the federal government remains the final decision-maker (Hyde 2010, 6-7).

On the American side, former President Lyndon Johnson defined the U.S. entity as the administrator of the Bonneville Power Association and the Northwest Division Engineer of the U.S. Army Corps of Engineers (Hyde 2010, 7). To complement the entities, an independent Permanent Engineering Board (PEB) was created with the purpose of ensuring the CRT is implemented correctly. The PEB reviews operations, provides recommendations and assists in resolving disagreements, although it is not an arbitration board. It makes no decisions or rules, but the recommendations carry significant weight (Altingoz et al. 2018, 53).

The CRT is operated by a series of plans, with the entities putting together the key planning tool, the Assured Operating Plan (AOP). This plan is formed five years in advance with the goal of determining the optimum power benefits within the specified flood control protection. It also determines the Canadian entitlement (Altingoz et al. 2018, 59). The next step in the series of plans is the annually produced Detailed Operating Plan (DOP), which unlike the AOP is prepared just before the beginning of the next operating year. The DOP includes procedures for implementing the AOP. It can also include changes to the AOP that might prove more advantageous for both countries. The entities often make changes during the operating year and through supplemental Operating Agreements (SOA); there has been at least one SOA signed each year since the 1990s (Hyde 2010, 8).

6. SCANDINAVIAN - MEDITERRANEAN CORRIDOR (SCANMED)

The Scandinavian-Mediterranean corridor (ScanMed) is the largest corridor within the Trans-European Transport Network (TEN-T), a network of infrastructure corridors throughout Europe, and is one of their nine core corridors. The ScanMed links Scandinavian and Italian seaports to major urban centers in Germany and Italy, covering Norway and seven other EU member states (European Commission 2014, 15). The corridor includes all modes of transportation, and its goal is to develop those modes collaboratively within the ScanMed and the TEN-T.

The TEN-T has the goal of closing infrastructure gaps, overcoming technical barriers and removing bottlenecks within the European Single Market (Bundesministerium für Arbeit, Innovation und Technologie 2016, 5). This corridor network originated in the early 1990s when the then-12 EU member states decided to establish infrastructure policy at the community level. Community guidelines for a trans-European network in the transportation sector were first adopted by the European Parliament and the Council in 1996 (Official Journal of the European Union 1996). These guidelines established a master plan to connect the networks of all transport modes. They also determine eligibility for EU funding and provide reference for the member states' infrastructure policy.

In 2009, the European Commission conducted a policy review that involved assessing TEN-T's strengths and weaknesses by considering advice from technical experts and consulting with stakeholders. This policy review led to governance structure for each of the corridors included in the TEN-T (European Commission 2020). The current co-ordinator for ScanMed is Pat Cox, former President of the European Parliament 2002-2004, and his role is to establish a work plan that identifies appropriate measures, mostly infrastructure investments, into ScanMed (Öberg et al. 2016, 863).

The corridor forum provides a consultative role and is comprised of the co-ordinator, the concerned states and stakeholders such as infrastructure companies, or local or regional authorities. This forum allows for co-ordination between adjoining states to discuss infrastructure development and provides the co-ordinator with access to information and data relevant to projects under discussion (Bundesministerium für Arbeit, Innovation und Technologie 2016, 14). The co-ordinator and the corridor forum work together to create a plan that the concerned states then approve. (Öberg et al. 2016, 863-4).

The inclusion of stakeholders in the corridor forum is determined by an agreement between the European Commission and the member states (Öberg et al. 2016, 865). The ScanMed has 188 stakeholders, comprised of both national and international entities (European Commission 2014). To ensure concerted and efficient implementation of infrastructure expansions and enhancements, each project is a responsibility of the individual states, but they are funded and co-ordinated on the European level (Bundesministerium für Arbeit, Innovation und Technologie 2016, 14). TEN-T guidelines do not regulate the funding of ScanMed projects. Instead, they are regulated by the

Connecting Europe Facility (CEF), an entity that the EU developed which defines financing methods, conditions and procedures for TEN-T corridor projects.

7. PILBARA CORRIDOR

The Pilbara Corridor is a mature mining region in Western Australia that began development in the 1960s to supply Asia with mining and energy products (Satchwell 2012). It encompasses 23 operating mines, four local government authorities and two major coastal towns: Karratha and Port Hedland (Everingham et al. 2013, 591). Iron ore was discovered in the Pilbara in 1891, but the Australian government banned exports in 1938 to safeguard local supplies and protect domestic resource production (Barratt and Ellem 2019, 5). The Pilbara iron ore industry did not begin exporting until the 1960s when pressure came from Japanese steel interests and investors, and at least one transnational company, Rio Tinto (Ellem 2015, 327). The Australian government was also interested in capturing market share from potential competitors such as South Africa (Barratt and Ellem 2019, 5). This outside pressure pushed the Australian government to lift the iron ore embargo in 1960, and the Western Australian government entered into agreements with companies about development conditions (Ellem 2015, 327).

In the early stages of development from the 1960s until the 1980s, there were three iron ore companies, a liquid natural gas operation and two salt operations. As these companies depended on the government for mining access, they provided most of the infrastructure in the Pilbara region such as rail, ports, water, power, housing and community infrastructure (Barratt and Ellem 2019, 5). The predecessors of Rio Tinto and BHP Billiton constructed large mines, and rail and port infrastructure. Their integrated mines are governed by state agreements, such as mining concessions, with the Government of Western Australia. These agreements contain limited and highly conditional undertakings regarding the granting of third-party access to their infrastructure (Collier and Ireland 2018, 66).

The Australian government introduced a National Access Regime (NAR) in 1995, with the purpose of promoting economically efficient use of and investment in the infrastructure, and providing a framework for a consistent approach to regulation in each industry (Collier and Ireland 2018, 66). The NAR does not apply where state-level, industry-specific or other qualifying access is in place. It instead operates as an umbrella framework to aid those without agreements in getting access to infrastructure. Once an application for access to Pilbara infrastructure is placed, the Australian government, subject to conditions being met, can declare infrastructure. This declaration enables the applicants to require the infrastructure owners to negotiate terms of access.

Only one part of Pilbara iron ore infrastructure has successfully been declared — a minor part of BHP Billiton's railway, and no party has sought access to it, although many forms of qualifying access agreements have been introduced (Collier and Ireland 2018, 66-7). In the 1980s, the responsibilities of governing towns began shifting away

from the companies to local government, a process referred to as normalization. As of 2010, some towns remained partially or fully under the jurisdiction of companies or state agreements (Everingham et al. 2013, 591). Normalization demonstrated that the Australian government's priorities had changed from regional development to an increasingly free market approach.

At the start of the 21st century, the time taken to open new mines had shortened and the cost decreased, as the companies were no longer required to build towns and infrastructure for employees' leisure time. These new mines were opened on an employee fly-in fly-out basis (Barratt and Ellem 2019, 7). In 2009, the Government of Western Australia established the Royalties for Regions Pilbara Cities initiative, committing almost AU\$1 billion to the development of towns into regional centres (Everingham et al. 2013, 592).

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