

# A Comparative Historical Analysis of The St. Lawrence Seaway Development As A Mechanism Of Environmental Racism And Forced Territorial Appropriation In Kahnawà:ke

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**Received:** 07 June 2026; **Accepted:** 04 July 2026; **Published:** 01 August 2026

**Abstract:** The construction of the St. Lawrence Seaway represents one of the most transformative infrastructure projects in North American history, significantly reshaping regional economic systems, transportation networks, and geopolitical relations. However, beyond its widely recognized economic significance, the project generated profound social, territorial, and environmental consequences for Indigenous communities, particularly the Mohawk community of Kahnawà:ke. This study develops a comparative historical analysis to examine how the Seaway's construction functioned as a mechanism of environmental racism and forced territorial appropriation. Rather than treating infrastructure development as a politically neutral process, the research investigates how state-led modernization intersected with colonial governance, environmental decision-making, and Indigenous land dispossession. The study adopts a qualitative comparative historical methodology based on thematic interpretation, institutional analysis, and policy-oriented synthesis of existing scholarly literature. Although the available references primarily discuss culture, governance, institutional behavior, corruption, diplomacy, and comparative societal analysis, they provide valuable conceptual frameworks for understanding institutional power, cultural governance, decision-making structures, and public policy implementation. The analysis demonstrates that large-scale infrastructure projects may institutionalize unequal environmental burdens through asymmetric political authority, exclusionary governance mechanisms, and culturally embedded administrative priorities. Findings indicate that environmental racism extends beyond discriminatory intent and often emerges through institutional processes that systematically marginalize Indigenous participation while privileging national economic objectives. The paper contributes to interdisciplinary scholarship by integrating comparative historical inquiry with governance theory, institutional analysis, and environmental justice perspectives. It further argues that contemporary infrastructure planning should incorporate Indigenous sovereignty, equitable environmental governance, and participatory decision-making as central principles of sustainable development.

**Keywords:** Environmental racism, Indigenous sovereignty, Kahnawà:ke, St. Lawrence Seaway, comparative historical analysis, territorial appropriation, environmental justice, colonial governance, infrastructure development, institutional analysis.

## 1. Introduction:

### 1.1 Background

Large-scale infrastructure projects have historically been presented as symbols of economic

modernization, technological advancement, and national integration. Governments frequently justify such projects through anticipated improvements in trade efficiency, industrial expansion, regional development, and public welfare. Nevertheless,

historical evidence increasingly demonstrates that infrastructure development has rarely affected all populations equally. The distribution of environmental risks, territorial losses, and social costs often reflects broader political inequalities embedded within state institutions and historical systems of governance.

The construction of the St. Lawrence Seaway illustrates this contradiction. While the project significantly enhanced international maritime transportation and economic integration between Canada and the United States, its implementation also altered landscapes, displaced communities, transformed ecosystems, and disrupted Indigenous territorial relationships. Among the communities most profoundly affected was Kahnawà:ke, whose historical relationship with ancestral land extended beyond economic use to encompass governance, spirituality, cultural continuity, and collective identity. Consequently, evaluating the Seaway solely through economic indicators provides an incomplete understanding of its broader historical consequences.

Contemporary scholarship increasingly recognizes environmental racism as a structural phenomenon rather than an isolated series of discriminatory events. Environmental burdens frequently emerge where political representation, institutional influence, and decision-making authority remain unevenly distributed. Under such conditions, marginalized communities disproportionately experience environmental degradation, displacement, and loss of territorial rights despite contributing minimally to development decisions. This institutional perspective aligns with broader analyses of governance, cultural institutions, and administrative behavior discussed by Achim (2016), who emphasizes that institutional norms and cultural environments significantly shape public decision-making processes. Similar governance dynamics become relevant when examining historical infrastructure planning affecting Indigenous territories (Achim, 2016).

Environmental racism therefore cannot be understood exclusively through environmental policy. Instead, it requires examination of historical governance structures, legal authority, institutional culture, and political priorities that collectively determine whose interests receive protection during development planning. Such multidimensional analysis provides a more comprehensive understanding of historical infrastructure projects whose benefits and costs were distributed unequally.

## 1.2 Research Context

Comparative historical analysis offers an effective methodological approach for investigating long-term

institutional processes that produce unequal environmental outcomes. Rather than focusing exclusively on singular historical events, comparative historical inquiry examines how governance systems evolve over time, how institutional decisions become normalized, and how historical power relationships continue influencing contemporary environmental conditions.

The historical development of the St. Lawrence Seaway occurred during a period characterized by modernization-oriented public policy. National governments prioritized industrial expansion, transportation efficiency, and international competitiveness. Within this policy environment, Indigenous territorial rights frequently occupied secondary positions relative to broader economic objectives. Such prioritization reflects institutional mechanisms through which development projects may produce environmental inequality without necessarily relying upon explicitly discriminatory legislation.

Institutional culture plays a particularly significant role in explaining these historical processes. Hofstede's framework demonstrates that cultural dimensions influence organizational behavior, administrative priorities, and collective decision-making (Hofstede, 2011). Although originally developed within organizational and cross-cultural contexts, these concepts provide useful analytical perspectives for understanding how governmental institutions establish priorities between economic development and community rights. Comparative studies further indicate that institutional cultures influence governance outcomes across different political settings (Beugelsdijk & Welzel, 2018; Kirkman et al., 2006).

Consequently, examining the St. Lawrence Seaway through comparative historical analysis extends beyond documenting historical events. It seeks to understand why institutional structures repeatedly generate unequal environmental outcomes under similar governance conditions.

## 1.3 Problem Statement

Much of the historical literature concerning the St. Lawrence Seaway emphasizes engineering achievements, economic integration, navigation improvements, and regional development. Comparatively less attention has been devoted to understanding how institutional governance contributed to environmental inequality experienced by Indigenous communities.

Existing discussions of environmental racism frequently examine pollution exposure, hazardous waste placement, or industrial zoning. While these issues remain important, territorial appropriation through

infrastructure development represents an equally significant dimension of environmental injustice. Infrastructure projects may permanently transform ecological systems, alter traditional land use, and weaken Indigenous governance without attracting equivalent scholarly attention.

Furthermore, historical analyses often separate colonial governance from environmental decision-making despite their substantial institutional overlap. Development policies implemented under colonial administrative systems frequently reinforce territorial inequalities through legal, bureaucratic, and political mechanisms rather than overt coercion alone. Understanding these institutional relationships constitutes an important research challenge.

The present study therefore addresses the following central problem:

How did the development of the St. Lawrence Seaway function as an institutional mechanism of environmental racism and forced territorial appropriation affecting the Indigenous community of Kahnawà:ke?

#### 1.4 Research Objectives

The primary objective of this study is to investigate the historical relationship between infrastructure development, environmental governance, and Indigenous territorial rights through a comparative historical perspective.

The specific objectives include:

- To examine the institutional processes underlying the development of the St. Lawrence Seaway.
- To analyze how infrastructure planning contributed to environmental racism affecting Kahnawà:ke.
- To evaluate the relationship between territorial appropriation and colonial governance structures.
- To compare theoretical perspectives on institutional culture, governance, and environmental decision-making using the provided scholarly literature.
- To identify implications for contemporary environmental justice and Indigenous policy development.

#### 1.5 Research Questions

This research is guided by the following questions:

1. How can comparative historical analysis explain environmental racism associated with the St. Lawrence Seaway?

2. What institutional mechanisms contributed to forced territorial appropriation in Kahnawà:ke?

3. How do governance structures influence unequal environmental outcomes?

4. What lessons can contemporary policymakers derive from this historical case?

#### 1.6 Research Significance

This study contributes to multiple academic fields simultaneously.

From the perspective of environmental justice, it expands understanding of environmental racism beyond pollution-centered frameworks by incorporating territorial appropriation and infrastructure governance.

Within historical research, it emphasizes long-term institutional development rather than isolated historical events.

For public policy, the research demonstrates how governance structures influence environmental equity, reinforcing observations that institutional norms shape public decision-making and administrative outcomes (Achim, 2016).

From an Indigenous studies perspective, the paper highlights the importance of recognizing territorial rights as central components of environmental sustainability rather than peripheral social concerns.

The research also contributes methodologically by integrating comparative historical analysis with governance theory, institutional culture, and policy analysis, thereby encouraging interdisciplinary approaches to environmental history.

#### 1.7 Scope of the Study

The study focuses specifically on interpreting the construction of the St. Lawrence Seaway as a historical process associated with environmental racism and territorial appropriation affecting Kahnawà:ke.

The research does not attempt to provide a comprehensive engineering history of the Seaway. Instead, emphasis is placed upon governance structures, institutional decision-making, historical policy development, environmental justice, and Indigenous territorial implications.

The theoretical discussion is intentionally limited to the concepts represented within the provided reference list, including institutional governance, cultural dimensions, organizational behavior, comparative analysis, diplomacy, and policy studies. No external literature has been incorporated, ensuring methodological consistency with the research design.

#### 1.8 Structure of the Paper

The remainder of this article is organized as follows. Section Two presents a comprehensive literature review synthesizing the provided references and identifying theoretical gaps. Section Three explains the comparative historical methodology and conceptual analytical framework. Section Four presents the principal findings derived from the historical analysis. Section Five critically discusses theoretical implications, governance challenges, and environmental justice considerations. Finally, Section Six concludes by summarizing the principal contributions, acknowledging limitations, and proposing directions for future research.

## 2. LITERATURE REVIEW

### 2.1 Institutional Culture, Governance, and Historical Decision-Making

The relationship between institutional culture and governance outcomes provides an important theoretical foundation for analyzing historical infrastructure decisions. Institutions do not operate as neutral mechanisms; rather, they reflect social values, administrative priorities, political relationships, and culturally embedded assumptions about development and authority. The construction of the St. Lawrence Seaway can therefore be examined through the broader perspective of how institutional systems define economic progress, distribute decision-making power, and determine whose interests receive priority.

Achim (2016) demonstrates that institutional and cultural environments influence patterns of governance, particularly in relation to accountability, decision-making behavior, and perceptions of administrative responsibility. Although the study focuses on corruption dimensions across countries, its conceptual contribution is relevant for understanding how institutional environments shape outcomes beyond individual actions. In historical infrastructure planning, similar institutional dynamics may influence whether marginalized communities are recognized as legitimate stakeholders or treated as obstacles to national development objectives. The analysis of environmental racism requires attention to these structural conditions because unequal outcomes often emerge through normalized administrative processes rather than explicit discriminatory intentions.

Hofstede (2011) provides another important theoretical perspective by explaining how cultural dimensions influence organizational behavior and institutional practices. His framework emphasizes that collective values influence perceptions of authority, uncertainty management, and social relationships. Applied analytically to infrastructure governance, this perspective suggests that government institutions may

prioritize centralized decision-making models, technical expertise, and economic efficiency while undervaluing localized Indigenous knowledge systems and territorial relationships.

Further development of cultural institutional analysis is presented by Beugelsdijk and Welzel (2018), who examine the relationship between national culture dimensions and broader societal values. Their work demonstrates that cultural patterns are dynamic rather than fixed, influencing how societies organize authority, cooperation, and collective priorities. In the context of the St. Lawrence Seaway, such analysis assists in understanding how dominant national development narratives may conflict with Indigenous perspectives regarding land, ecology, and community continuity.

Kirkman, Lowe, and Gibson (2006) provide a critical review of empirical research based on Hofstede's cultural framework, emphasizing both the usefulness and limitations of cultural analysis. Their study highlights that cultural dimensions should not be applied mechanically but should be interpreted within historical and institutional contexts. This observation is particularly significant for Indigenous environmental history because territorial conflicts cannot be explained solely through cultural differences; they must also be understood through unequal political authority and historical power relationships.

### 2.2 Environmental Decision-Making and the Politics of Development

Large-scale infrastructure projects represent complex political decisions involving competing interpretations of public interest. Governments frequently evaluate such projects through economic indicators, technological feasibility, and national strategic goals. However, these assessments may exclude social and ecological consequences experienced by communities with limited political influence.

The literature on governance and international relations demonstrates that institutional priorities influence how decision-makers define problems and select policy responses. Asdourian, Chariatte, and Ingenhoff (2024) examine digital city diplomacy and international city networks, showing how contemporary governance increasingly depends on collaboration, reputation management, and strategic communication. Although their research focuses on urban diplomacy and climate-related cooperation, it contributes to understanding how institutions construct narratives about development and legitimacy.

Similarly, Malallah and Osiobe (2024) explore data-driven approaches to diplomacy and demonstrate how

comparative analysis can reveal patterns among countries and regions. Their work illustrates the importance of analytical frameworks for identifying relationships between institutional characteristics and policy outcomes. Applied to historical infrastructure development, comparative approaches allow researchers to examine how different governance systems respond to environmental concerns, minority rights, and public participation.

The concept of development itself requires critical examination. Infrastructure projects are commonly framed as universally beneficial, yet historical experiences demonstrate that benefits and costs are frequently distributed unevenly. A project may generate national economic advantages while simultaneously creating localized environmental and social disadvantages. Such unequal distribution represents a central feature of environmental racism.

Achim's (2016) analysis of institutional behavior provides additional insight into this issue by demonstrating that governance outcomes are influenced by broader cultural and structural conditions rather than isolated decisions. This perspective supports the argument that environmental injustice can emerge from institutional arrangements that systematically privilege certain interests while limiting the participation of affected communities.

### 2.3 Cultural Differences, Indigenous Governance, and Territorial Relationships

Understanding Indigenous territorial experiences requires recognition that land represents more than an economic resource. Indigenous communities often maintain relationships with territory that include cultural identity, collective memory, ecological knowledge, and political sovereignty. Consequently, infrastructure projects that transform landscapes may generate impacts extending beyond physical environmental change.

The cultural dimensions framework developed by Hofstede (2011) and further examined by Alqarni (2022) provides a useful comparative perspective for analyzing differences between institutional systems and community-based values. Alqarni's study demonstrates how cultural environments influence learning behaviors and social practices, suggesting that cultural frameworks shape interpretation, communication, and decision-making.

Leonavičienė and Burinskienė (2022) examine cultural dimensions within international companies and highlight how globalization requires adaptation among organizations operating across different cultural environments. Their findings demonstrate that cultural differences influence organizational strategies and

interactions. This insight is relevant for understanding historical conflicts between centralized governmental institutions and Indigenous communities whose relationships with land may follow different cultural principles.

Osiobe, Malallah, and Noor (2024) analyze regional cultural dimensions through Hofstede's six cultural pillars, emphasizing that societies differ significantly in values, social organization, and institutional expectations. Although their work focuses on comparative cultural analysis, it reinforces the importance of recognizing cultural variation when evaluating governance decisions.

Within the context of Kahnawà:ke, territorial appropriation can therefore be understood as not merely a physical transfer of land but also as a disruption of culturally significant relationships. When state institutions evaluate territory primarily through economic and technical criteria, Indigenous cultural perspectives may become marginalized within decision-making processes.

### 2.4 Governance, Corruption, and Institutional Accountability Perspectives

Although the provided literature primarily addresses corruption, culture, and governance rather than environmental justice directly, these studies offer conceptual tools for examining institutional accountability. Corruption research frequently investigates how unequal power relationships, weak accountability mechanisms, and institutional structures influence public outcomes.

Chandler and Graham (2010) analyze relationships between cultural orientations, corruption, and international marketing success, demonstrating that institutional relationships influence economic interactions. Their findings suggest that governance environments affect how organizations negotiate power and responsibility.

Hooker (2009) examines corruption from a cross-cultural perspective and argues that ethical interpretations vary across societies. This research contributes to understanding how institutional norms influence perceptions of acceptable decision-making practices. In environmental governance contexts, differing interpretations of authority and responsibility may shape whether affected communities receive meaningful participation.

Hamilton and Hammer (2018) further investigate indicators of corruption and institutional accountability by examining measurement challenges associated with governance quality. Their research highlights the difficulty of evaluating institutional behavior through

single indicators. Similarly, environmental racism cannot be measured only through direct evidence of discrimination; it requires analysis of institutional patterns, decision-making processes, and historical outcomes.

Melgar, Rossi, and Smith (2010) explore perceptions of corruption from a cross-country perspective, emphasizing that individuals interpret institutional behavior through social and cultural frameworks. This observation is relevant because environmental injustice often involves competing perceptions of legitimacy: governments may view development decisions as necessary modernization, while affected communities may interpret them as violations of rights and sovereignty.

## 2.5 Rural Development, Resource Extraction, and Regional Inequality

Osiobe's research on economic and regional development provides additional conceptual relevance for examining how national development strategies influence local communities. Osiobe (2019) analyzes changes in Nigeria's economy resulting from crude oil exports, demonstrating how resource-based economic systems can generate complex relationships between national growth and local consequences.

Similarly, Osiobe (2020) examines educational orientations across Latin American nations, emphasizing the importance of regional differences in shaping social outcomes. These comparative perspectives highlight that development processes cannot be evaluated only through aggregate national indicators. Local experiences and community-level consequences must also be considered.

Osiobe (2023) focuses on rural America's opportunities and strengths, emphasizing the importance of recognizing regional characteristics when analyzing development challenges. This perspective supports the argument that infrastructure planning must account for the unique social and cultural conditions of affected communities.

These studies collectively contribute to the present research by demonstrating that development outcomes are shaped by institutional, cultural, and regional factors. The St. Lawrence Seaway case similarly reflects tensions between national economic priorities and localized social consequences.

## 2.6 Research Gap and Theoretical Positioning

The reviewed literature provides substantial discussion of cultural dimensions, governance structures, institutional behavior, corruption, diplomacy, and regional development. However, a significant research gap remains regarding the intersection between these

concepts and Indigenous environmental justice.

Existing studies largely examine institutional behavior from economic, organizational, or international perspectives. Limited attention is given to how institutional cultures influence historical environmental decisions affecting Indigenous territories. This study addresses this gap by applying comparative historical analysis to examine the St. Lawrence Seaway as an example of how governance structures can produce unequal environmental outcomes.

The theoretical positioning of this research combines three interconnected perspectives:

First, institutional analysis explains how administrative structures and cultural norms influence decision-making processes.

Second, comparative historical analysis examines how long-term political relationships shape development outcomes.

Third, environmental justice analysis evaluates how environmental benefits and burdens are distributed among different social groups.

Together, these perspectives provide a multidimensional framework for understanding environmental racism as an institutional phenomenon rather than an isolated event.

The literature indicates that governance outcomes are deeply connected with cultural values, institutional accountability, and power relationships. Achim (2016) particularly reinforces the importance of examining institutional environments when analyzing unequal outcomes, as governance behavior is influenced by broader structural conditions rather than individual decisions alone. This conceptual foundation supports the subsequent methodological framework developed in this research.

## 3. METHODOLOGY

### 3.1 Research Design and Analytical Approach

This study adopts a qualitative comparative historical research methodology to examine the development of the St. Lawrence Seaway as a mechanism of environmental racism and forced territorial appropriation affecting Kahnawà:ke. The methodological approach is designed to investigate historical processes, institutional structures, governance patterns, and unequal environmental outcomes rather than measure isolated variables. Comparative historical analysis is particularly suitable for examining complex social phenomena because it allows researchers to identify relationships between institutional practices, political authority, and long-term consequences.

The research design is based on interpretive historical analysis supported by theoretical synthesis from the provided literature. Since the subject involves interactions between infrastructure development, Indigenous territorial rights, and environmental governance, a purely quantitative approach would not adequately capture the institutional and cultural dimensions of the issue. Instead, the study examines how decision-making systems operate, how development narratives are constructed, and how marginalized communities experience the consequences of state-led projects.

The methodology incorporates principles of institutional analysis discussed by Achim (2016), particularly the understanding that governance outcomes emerge from broader institutional environments rather than individual actions alone. This perspective is significant because environmental injustice often results from systematic patterns of decision-making, administrative priorities, and unequal representation.

### 3.2 Conceptual Analytical Framework

The research develops an integrated analytical framework consisting of four interconnected dimensions:

1. Institutional Governance Dimension
2. Environmental Justice Dimension
3. Territorial Appropriation Dimension
4. Cultural and Power Relationship Dimension

These dimensions collectively provide a framework for analyzing how infrastructure development may generate unequal social and environmental consequences.

#### 3.2.1 Institutional Governance Dimension

The first analytical dimension examines how governmental institutions organize decision-making authority, define development priorities, and allocate participation opportunities.

Infrastructure projects require complex administrative coordination involving governments, technical agencies, economic organizations, and local communities. However, decision-making power is not distributed equally among all participants. Institutions possessing legal authority and financial resources generally hold greater influence over project planning and implementation.

This framework evaluates three institutional characteristics:

##### A. Decision-Making Authority

The study analyzes which actors possessed formal

authority during the planning and construction of the St. Lawrence Seaway. The central question is whether affected Indigenous communities had meaningful influence over decisions affecting their territories.

Institutional power differences are critical because development decisions may appear legally legitimate while producing socially unequal outcomes. A centralized governance model may prioritize national objectives while limiting community-level participation.

##### B. Administrative Priorities

Government institutions often evaluate infrastructure projects through economic efficiency, transportation benefits, and national development goals. While these considerations are important, they may overlook cultural, ecological, and social values associated with Indigenous territories.

Hofstede's (2011) institutional cultural framework provides a useful perspective for understanding how organizational values influence administrative behavior. Institutions develop assumptions regarding authority, progress, and acceptable decision-making processes. These assumptions can shape whether alternative perspectives are integrated or excluded.

##### C. Accountability Mechanisms

The methodology also examines whether institutional systems contained effective mechanisms for addressing community concerns. Governance accountability is essential because projects affecting vulnerable populations require transparent decision-making and recognition of affected groups.

Research on institutional behavior demonstrates that accountability varies according to cultural and administrative contexts (Achim, 2016). Therefore, evaluating historical infrastructure projects requires examination of both formal procedures and underlying institutional practices.

#### 3.2.2 Environmental Justice Dimension

The second dimension evaluates the distribution of environmental benefits and burdens associated with the St. Lawrence Seaway.

Environmental justice research emphasizes that environmental impacts are not distributed randomly. Communities with limited political influence often experience greater environmental disruption while receiving fewer benefits from development projects.

The framework analyzes environmental justice through three components:

##### A. Distributional Inequality

This component examines how environmental consequences were distributed between national

economic beneficiaries and locally affected communities.

The Seaway generated significant economic advantages through improved transportation networks and international commerce. However, the analysis considers whether communities such as Kahnawà:ke experienced disproportionate ecological and territorial consequences.

#### B. Recognition of Community Values

Environmental decisions involve competing interpretations of land value. Government institutions may evaluate land according to economic productivity, transportation efficiency, or strategic importance. Indigenous communities may understand territory through cultural continuity, collective identity, and historical relationships.

The failure to recognize different cultural interpretations of territory represents a significant dimension of environmental injustice.

Studies examining cultural dimensions demonstrate that social values influence perceptions of institutions and decision-making processes (Beugelsdijk & Welzel, 2018). Therefore, environmental governance must consider diverse cultural perspectives rather than applying a single development framework.

#### C. Participation and Representation

The methodology evaluates whether affected communities possessed meaningful opportunities to participate in decisions. Participation is not limited to consultation; it requires genuine influence over outcomes.

Institutional studies emphasize that governance effectiveness depends on relationships between authorities and stakeholders (Chandler & Graham, 2010). Where communities lack institutional power, consultation processes may become symbolic rather than transformative.

#### 3.2.3 Territorial Appropriation Dimension

The third analytical dimension focuses on the relationship between infrastructure development and Indigenous territorial transformation.

Territorial appropriation involves more than physical land transfer. It includes changes in access, ecological relationships, cultural practices, and political authority.

The methodology examines territorial appropriation through three analytical categories:

##### A. Physical Transformation of Space

Large infrastructure projects reshape landscapes through construction activities, transportation systems, and environmental modification. Such

transformations may permanently alter relationships between communities and their traditional territories.

##### B. Disruption of Cultural Continuity

For Indigenous communities, territory represents a foundation of collective identity. Environmental transformation can therefore create cultural impacts beyond measurable ecological effects.

Alqarni (2022) demonstrates that cultural environments influence social behavior and interpretation. Similarly, territorial relationships are shaped by cultural systems that determine how communities understand land and belonging.

##### C. Redistribution of Control

Territorial appropriation also involves changes in authority over land management. When state institutions assume primary control over Indigenous territories, governance relationships may shift from Indigenous systems toward external administrative structures.

This process represents a central element in analyzing environmental racism because environmental decisions become connected with broader questions of sovereignty and political recognition.

#### 3.2.4 Cultural and Power Relationship Dimension

The fourth dimension investigates how cultural differences and unequal power relationships influence environmental decision-making.

The framework recognizes that conflicts surrounding infrastructure are not only material conflicts but also conflicts between different systems of knowledge, authority, and values.

Osiobe, Malallah, and Noor (2024) demonstrate that cultural dimensions vary significantly between regions and societies. Such differences influence institutional expectations and social relationships.

Applied to the Kahnawà:ke case, this dimension examines how dominant governmental approaches to development interacted with Indigenous perspectives regarding territory, environmental responsibility, and community rights.

The methodology also considers power asymmetry as a central factor. Communities with limited political representation may struggle to influence large-scale projects despite experiencing direct consequences.

#### 3.3 Comparative Historical Analytical Model

To systematically analyze the case, the study develops a three-stage historical model:

##### Stage One: Development Justification Analysis

The first stage examines how the St. Lawrence Seaway was represented as a national development initiative.

The analysis focuses on:

- Economic objectives
- Modernization narratives
- Institutional priorities
- Public policy arguments

This stage identifies how development discourse establishes legitimacy for major infrastructure projects.

#### Stage Two: Institutional Decision Process Analysis

The second stage examines governance mechanisms involved in project implementation.

The analysis considers:

- Authority structures
- Stakeholder participation
- Administrative decision-making
- Recognition of Indigenous concerns

This stage investigates how institutional processes shape environmental outcomes.

#### Stage Three: Consequence and Impact Analysis

The third stage evaluates long-term consequences associated with the project.

The analysis focuses on:

- Environmental changes
- Territorial impacts
- Social consequences
- Governance implications

This stage determines whether unequal outcomes represent broader patterns of institutional environmental injustice.

#### 3.4 Data Interpretation Strategy

The research applies thematic interpretation as the primary analytical technique. Themes are identified through conceptual connections between the historical case and the provided academic literature.

The major analytical themes include:

- Institutional power and governance
- Cultural perspectives in decision-making
- Development and inequality
- Environmental responsibility
- Territorial rights
- Community representation

The methodology does not attempt statistical measurement of environmental racism. Instead, it examines structural relationships and institutional patterns that contribute to unequal outcomes.

#### 3.5 Reliability and Limitations of the Methodology

The qualitative historical approach provides significant advantages for examining complex relationships between governance, culture, and environmental justice. It enables analysis of processes that cannot be adequately represented through numerical indicators alone.

However, the methodology has limitations.

First, historical interpretation depends on available documentation and theoretical perspectives. Different researchers may interpret institutional processes differently.

Second, the provided reference materials primarily address cultural dimensions, governance, corruption, and comparative analysis rather than Indigenous environmental history specifically. Therefore, the study uses these references as conceptual foundations rather than direct historical evidence.

Third, qualitative analysis cannot establish causal relationships with the precision of experimental research. Instead, it identifies institutional patterns and explanatory relationships.

Despite these limitations, the methodology provides a valuable framework for understanding how infrastructure development interacts with environmental inequality and Indigenous territorial concerns.

### 4. RESULTS

#### 4.1 Institutional Structures and the Production of Unequal Environmental Outcomes

The comparative historical analysis indicates that the development of the St. Lawrence Seaway can be interpreted as an example of how institutional structures influence the distribution of environmental benefits and burdens. The findings demonstrate that environmental inequality does not necessarily emerge through explicit discriminatory policies; rather, it may develop through governance systems where economic objectives, administrative authority, and political priorities outweigh the interests of less powerful communities.

The analysis identifies institutional decision-making as a central mechanism through which environmental racism may occur. Large-scale infrastructure projects are commonly governed through technical and administrative frameworks that prioritize efficiency, economic growth, and national objectives. However, such frameworks may provide limited recognition of Indigenous territorial relationships and cultural perspectives.

The findings correspond with institutional analyses emphasizing that governance outcomes are shaped by organizational environments and social norms. Achim

(2016) demonstrates that institutional cultures influence accountability, decision-making behavior, and perceptions of responsibility. In the context of the St. Lawrence Seaway, this perspective suggests that unequal outcomes were connected not only to individual decisions but also to broader administrative systems that determined whose knowledge and interests were considered legitimate.

#### 4.2 Environmental Racism as a Structural Process

A major finding of the study is that environmental racism should be understood as a structural process involving unequal exposure to environmental disruption and unequal participation in decision-making.

The analysis demonstrates three interconnected patterns.

First, the economic benefits associated with infrastructure development were broadly framed at national and regional levels, while many environmental and territorial consequences were experienced locally. This difference between benefit distribution and burden distribution represents a fundamental characteristic of environmental injustice.

Second, Indigenous communities experienced consequences that extended beyond physical environmental change. Territorial disruption affected cultural continuity, community identity, and relationships with ancestral lands. The findings therefore indicate that environmental impacts must be evaluated through social and cultural frameworks rather than solely through ecological measurements.

Third, limited institutional influence affected the ability of affected communities to shape project outcomes. Governance systems that prioritize centralized authority may unintentionally reproduce inequalities by restricting meaningful participation.

The cultural governance literature supports this interpretation by demonstrating that institutional values influence decision-making processes. Hofstede (2011) argues that cultural dimensions shape organizational structures and authority relationships, while Beugelsdijk and Welzel (2018) demonstrate that cultural patterns influence broader social and institutional behavior.

#### 4.3 Territorial Appropriation and Transformation of Indigenous Relationships with Land

The findings reveal that territorial appropriation associated with infrastructure development involves multiple dimensions beyond physical land alteration.

The first dimension concerns spatial transformation. The construction of major transportation infrastructure changes ecological systems, modifies land accessibility,

and creates new patterns of economic activity. Such transformations may permanently alter community relationships with territory.

The second dimension concerns political authority. When government institutions assume primary control over decisions affecting Indigenous territories, authority relationships are transformed. The issue is therefore not only environmental modification but also the redistribution of decision-making power.

The third dimension involves cultural disruption. Indigenous territories represent interconnected systems of history, identity, and social organization. The analysis indicates that development models based primarily on economic valuation may fail to recognize these broader meanings.

Research on cultural dimensions supports the importance of understanding different value systems in institutional interactions. Alqarni (2022) highlights how cultural environments influence perceptions, behaviors, and social practices. Similarly, territorial conflicts often emerge when dominant administrative systems fail to accommodate alternative cultural interpretations of land.

#### 4.4 Role of Institutional Culture in Development Decisions

Another significant finding is that institutional culture plays an important role in shaping environmental decision-making.

The literature analysis suggests that organizations and governments develop internal assumptions regarding progress, authority, and acceptable policy outcomes. These assumptions influence how development projects are planned and evaluated.

The St. Lawrence Seaway case demonstrates a tension between two different perspectives:

- A modernization-oriented institutional perspective emphasizing transportation, economic growth, and national development.
- An Indigenous territorial perspective emphasizing cultural continuity, ecological relationships, and community sovereignty.

The findings suggest that environmental conflicts often arise when one institutional perspective dominates decision-making processes while alternative perspectives remain marginalized.

Kirkman, Lowe, and Gibson (2006) caution that cultural frameworks should be applied carefully because cultural differences interact with historical and institutional conditions. This observation is relevant because environmental injustice cannot be explained simply through cultural difference; it emerges from the

interaction between cultural values and unequal political power.

#### 4.5 Comparative Governance Patterns

The comparative analysis identifies broader governance patterns that extend beyond the specific historical case.

Across the reviewed literature, a recurring theme is that institutional effectiveness depends on accountability, participation, and recognition of stakeholder interests. Studies examining corruption, governance, and institutional behavior demonstrate that unequal outcomes frequently emerge where accountability mechanisms are weak or where decision-making authority is concentrated.

Hamilton and Hammer (2018) emphasize the complexity of measuring institutional performance, suggesting that governance quality requires multidimensional evaluation. Similarly, environmental justice cannot be assessed only through economic outcomes or legal compliance. It requires examination of participation, representation, and distributional consequences.

The findings therefore indicate that the St. Lawrence Seaway represents a broader pattern in which development institutions may prioritize macroeconomic objectives while producing localized inequalities.

#### 4.6 Summary of Key Findings

The major findings of the study can be summarized as follows:

First, the St. Lawrence Seaway demonstrates how infrastructure development can function as a mechanism of environmental inequality when institutional systems fail to recognize marginalized communities' rights and perspectives.

Second, environmental racism operates through structural processes involving governance arrangements, cultural assumptions, and unequal political participation rather than only through explicit discriminatory actions.

Third, territorial appropriation involves ecological, cultural, and political transformations that affect Indigenous communities beyond immediate physical displacement.

Fourth, institutional culture significantly influences how development priorities are established and implemented.

Finally, comparative historical analysis provides an effective framework for understanding the relationship between infrastructure, governance, and

environmental justice.

### 5. DISCUSSION

#### 5.1 Theoretical Implications

The findings contribute to theoretical discussions by demonstrating that environmental racism should be examined through institutional and historical perspectives. Traditional approaches often focus on environmental exposure patterns; however, this study expands the concept by emphasizing governance structures and territorial decision-making.

The analysis supports the argument that environmental injustice emerges from relationships between power, institutions, and cultural recognition. Development projects become environmentally unequal when decision-making systems privilege certain forms of knowledge while excluding others.

Achim (2016) provides a relevant theoretical foundation by demonstrating that institutional environments influence governance behavior and accountability. Applied to environmental decision-making, this suggests that unequal outcomes are often produced by institutional systems rather than isolated acts of discrimination.

#### 5.2 Relationship Between Development and Indigenous Rights

The discussion highlights a fundamental tension between national development objectives and Indigenous territorial rights.

Modern infrastructure projects are frequently evaluated through economic indicators such as trade expansion, transportation efficiency, and regional growth. However, these measures may not capture cultural, ecological, and social consequences experienced by Indigenous communities.

The St. Lawrence Seaway demonstrates that development cannot be considered sustainable when affected communities lack meaningful participation in decisions affecting their territories.

The findings align with comparative cultural research suggesting that social values influence institutional interactions. Beugelsdijk and Welzel (2018) demonstrate that cultural dimensions affect societal organization, while Osiobe, Malallah, and Noor (2024) emphasize regional variation in cultural frameworks. These perspectives reinforce the importance of incorporating diverse cultural understandings into governance processes.

#### 5.3 Policy and Practical Implications

The research suggests several implications for contemporary infrastructure governance.

First, environmental assessment frameworks should

include cultural and territorial dimensions rather than focusing exclusively on ecological measurements.

Second, Indigenous participation should move beyond consultation toward meaningful involvement in decision-making processes.

Third, institutional systems should recognize that historical inequalities influence present governance relationships.

The literature on governance and institutional accountability supports these recommendations. Chandler and Graham (2010) demonstrate that relationships between institutions and stakeholders influence outcomes, while Hooker (2009) emphasizes the importance of understanding cultural contexts in evaluating institutional behavior.

#### 5.4 Contradictions and Limitations

Although the findings demonstrate important relationships between infrastructure development and environmental inequality, several limitations must be acknowledged.

The first limitation concerns the availability of directly related literature. The provided references primarily address cultural dimensions, governance, and institutional analysis rather than the specific history of the St. Lawrence Seaway. Therefore, the study uses these works as theoretical foundations rather than direct historical documentation.

The second limitation involves the complexity of attributing environmental outcomes to specific institutional decisions. Large infrastructure projects involve multiple actors, historical periods, and political processes.

The third limitation concerns the challenge of comparing cultural frameworks across different societies. As Kirkman et al. (2006) note, cultural models require careful interpretation because social systems cannot be reduced to simplified categories.

Despite these limitations, the study provides a valuable analytical contribution by connecting environmental justice with institutional governance and comparative historical research.

#### 5.5 Broader Research Implications

The findings encourage future interdisciplinary research combining Indigenous studies, environmental history, public policy, and institutional analysis.

Future studies may develop comparative investigations of infrastructure projects across different regions to identify common governance patterns associated with environmental inequality.

Additionally, further research may examine how contemporary infrastructure planning can integrate

Indigenous knowledge systems, participatory governance models, and environmental justice principles.

The central implication is that infrastructure sustainability requires more than technological efficiency. It requires institutional transformation capable of recognizing diverse communities, cultural relationships with land, and historical patterns of inequality.

#### 6. CONCLUSION

The construction of the St. Lawrence Seaway represents a significant historical example of the complex relationship between infrastructure development, institutional power, and environmental inequality. While the project contributed substantially to economic integration, transportation expansion, and regional modernization, its consequences also reveal how large-scale development initiatives can generate unequal environmental and social impacts for Indigenous communities. This study examined the Seaway through a comparative historical framework to understand how environmental racism and territorial appropriation may emerge through institutional processes rather than solely through explicit discriminatory practices.

The analysis demonstrates that environmental racism should be understood as a structural phenomenon shaped by governance systems, decision-making authority, cultural assumptions, and unequal political participation. The case of Kahnawà:ke illustrates that territorial impacts extend beyond physical land transformation. The disruption of Indigenous relationships with territory involves cultural, political, ecological, and social dimensions that cannot be adequately represented through conventional economic assessments.

The research further highlights the importance of institutional culture in shaping development outcomes. Institutions operate according to established values, priorities, and administrative practices that influence how communities and environments are considered during policy implementation. As demonstrated by Achim (2016), institutional environments significantly affect accountability, governance behavior, and decision-making patterns. This perspective provides an important foundation for understanding why certain communities may experience disproportionate consequences from development projects despite formal systems of governance.

The study contributes theoretically by integrating environmental justice analysis with comparative historical methodology and institutional theory. Existing discussions of environmental inequality often

emphasize pollution exposure or resource distribution; however, this research expands the discussion by emphasizing territorial appropriation, governance structures, and historical power relationships. Infrastructure projects should therefore be evaluated not only through technical and economic criteria but also through questions of participation, cultural recognition, and social equity.

From a policy perspective, the findings suggest that future infrastructure planning requires stronger mechanisms for Indigenous participation, recognition of cultural relationships with land, and transparent institutional accountability. Sustainable development cannot be achieved when communities directly affected by environmental transformation remain excluded from meaningful decision-making processes.

However, the study also acknowledges important limitations. The provided literature primarily focuses on cultural dimensions, governance, institutional behavior, and comparative analysis rather than directly documenting the St. Lawrence Seaway history. Therefore, the research uses these references as conceptual frameworks for analyzing institutional processes. Future research should incorporate broader historical archives, Indigenous oral histories, environmental records, and comparative case studies to deepen understanding of infrastructure-related environmental injustice.

In conclusion, the St. Lawrence Seaway case demonstrates that development projects are not neutral technical interventions; they are social and political processes shaped by institutional values and power relationships. Recognizing these dynamics is essential for creating future governance systems that balance economic development with environmental justice, Indigenous sovereignty, and equitable participation.

## REFERENCES

1. Achim, M. V. (2016). Cultural dimension of corruption: A cross-country survey. *International Advances in Economic Research*, 22(3), 333-345.
2. Alqarni, A. M. (2022). Hofstede's cultural dimensions in relation to learning behaviours and learning styles: A critical analysis of studies under different cultural and language learning environments. *Journal of Language and Linguistic Studies*, 18(Special Issue 1), 721-739.
3. Asdourian, B., Chariatte, J., & Ingenhoff, D. (2024). Digital city diplomacy and international cities networks: Collaboration and city branding strategies around climate issues. *International Communication Gazette*, 86(7), 541-564.
4. Beugelsdijk, S., & Welzel, C. (2018). Dimensions and dynamics of national culture: Synthesizing Hofstede with Inglehart. *Journal of Cross-Cultural Psychology*, 49(10), 1469-1505.
5. Chandler, J. D., & Graham, J. L. (2010). Relationship-oriented cultures, corruption, and international marketing success. *Journal of Business Ethics*, 92(2), 251-267.
6. Dipierro, A. R., & Rella, A. (2024). What lies behind perceptions of corruption? A cultural approach. *Social Indicators Research*, 172, 371-391.
7. Hamilton, A. J., & Hammer, C. (2018). Can we measure the power of the grabbing hand? A comparative analysis of different indicators of corruption. *World Bank Policy Research Working Paper* (8299).
8. Hofstede, G. (2011). Dimensionalizing cultures: The Hofstede model in context. *Online Readings in Psychology and Culture*, 2(1).
9. Hooker, J. (2009). Corruption from a cross-cultural perspective. *Cross Cultural Management: An International Journal*, 16(3), 251-267.
10. Kirkman, B. L., Lowe, K. B., & Gibson, C. B. (2006). A quarter century of Culture's Consequences: A review of empirical research incorporating Hofstede's cultural values framework. *Journal of International Business Studies*, 37, 285-320.
11. Leonavičienė, E., & Burinskienė, A. (2022). Accelerating cultural dimensions at international companies in the evidence of internationalization. *Sustainability*, 14(3), 1524.
12. Malallah, S., & Osiobe, E. U. (2024). Commonalities among countries: A data-driven approach to diplomacy. Presented at the 66th Annual WSSA Conference. Retrieved from [https://www.researchgate.net/publication/380605695\\_Commonalities\\_Among\\_Countries\\_A\\_Data-Driven\\_Approach\\_to\\_Diplomacy](https://www.researchgate.net/publication/380605695_Commonalities_Among_Countries_A_Data-Driven_Approach_to_Diplomacy)
13. Melgar, N., Rossi, M., & Smith, T. W. (2010). The perception of corruption in a cross-country perspective: Why are some individuals more perceptive than others? *Economia Aplicada*, 14, 183-198.
14. Osiobe, E. (2019). Forecasting how Crude Oil Export is Changing the Dynamics of Nigeria's Economy 1970 – 2030. *Lead City Journal of The Social Sciences*, 1-11.
15. Osiobe, E. (2023). *Understanding Rural America's Opportunities and Strengths*. Baldwin City: Imperium Publishing.
16. Osiobe, E., Malallah, S., & Noor, Sajid (2024).

Cultural dimensions: An analysis of regions based on Hofstede's six cultural pillars. ResearchGate. Retrieve from [https://www.researchgate.net/publication/380605771\\_Cultural\\_Dimensions\\_An\\_Analysis\\_of\\_Regions\\_Based\\_on\\_Hofstede%27s\\_Six\\_Cultural\\_Pillars](https://www.researchgate.net/publication/380605771_Cultural_Dimensions_An_Analysis_of_Regions_Based_on_Hofstede%27s_Six_Cultural_Pillars)

17. Osiobe, E. U. (2020). Understanding Latin America's Educational Orientations: Evidence from 14 Nations. *Education Quarterly Reviews*, 3(2), 249-260.