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**Linda J Allen**
Ph.D, University of Maryland Global Campus, Rensselaer, NY 12144, USA

**Corresponding Author:**
**Linda J Allen**
Ph.D, University of Maryland Global Campus, Rensselaer, NY 12144, USA

# Explaining the institutional evolution of BECC and NADbank

## Linda J Allen

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**Abstract**
The Border Environment Cooperation Commission (BECC) and North American Development Bank (NADBank) were established 30 years ago to address the lack of environmental infrastructure in the U.S.-Mexico border region. Their institutional design incorporated innovative structures intended to increase their effectiveness and address shortcomings that had historically plagued similar multilateral development institutions, such as the World Bank. Over the years, however, their institutional structure evolved considerably. Using a historical institutionalism framework, this article traces the evolution of BECC and NADBank from innovative institutions to more traditional institutions. The study demonstrates that although the innovative design of BECC and NADBank was attractive in principle, it was problematic in practice because of a mismatch between the design and border context. The study highlights that institutional innovations can have unintended consequences that should be considered in the future design or reform of other multilateral development institutions.

**Keywords:** BECC, NADBank, historical institutionalism, multilateral development

## Introduction
In 1993, the U.S. and Mexico announced with much fanfare the establishment of two new binational institutions, the Border Environment Cooperation Commission (BECC) and North American Development Bank (NADBank) [1] to develop and finance much-needed water, wastewater, and solid waste infrastructure within the U.S.-Mexico border region[1]. At that time, BECC and NADBank were lauded for their innovative institutional designs [2, 3] that were intended to address the shortcomings and criticisms of similar development institutions, such as the International Bank for Reconstruction and Development (IBRD). Over the years, however, the institutional structures of BECC and NADBank were reformed, resulting in a gradual evolution into more traditional development institutions. Finally in 2017, the U.S. and Mexico completely merged BECC and NADBank together into a single institution, with BECC being subsumed entirely by NADBank [4], a transformation that ultimately eliminated the last remaining vestige of their original innovative institutional design.

Why did this institutional evolution occur given the widespread support for the original institution structures of BECC and NADBank and what are the implications for other existing and future development institutions? Surprisingly, the institutional evolution of BECC and NADBank since the 1990s has not received any attention in the literature. To address this gap, this article empirically analyzes their evolution using the theoretical framework of historical institutionalism[5] and in doing so, provides important insights for the design or reform of other development institutions. The article is organized as follows: first, it provides a brief overview of the analytical framework of historical institutionalism, then to set the context, it provides general background on conventional international development institutions and their shortcomings as well as background on establishment of BECC and NADBank, which is then followed by the analysis of the institutional design and restructuring of these two institutions, and concluding with the lessons learned from their evolution.

## Historical Institutionalism
International institutions, including international development institutions, have been the focus of considerable research over the years because of their central role in coordinating and

influencing the actions of states. In general, this research has examined the emergence, constitutive internal design, effectiveness, and change of international institutions over time using the theoretical frameworks of rationalism and constructivism [6, 7]. More recently, historical institutionalism has been used to examine the rise and decline of institutions over time [5, 8, 9] by analyzing long-term processes and critical junctures that shape institutional outcomes[5]. Within this framework, both exogeneous and endogenous factors may contribute to institutional continuity over time, through processes of policy feedback and path dependence[5] or conversely, these factors may lead to abrupt institutional change at critical junctures or more incremental change over longer periods of time when 'constrained by past trajectories' [8, 9].

The politics of competing interests, of course, plays a role in the stability or transformation of an international institution. Those who benefit from existing arrangements may have an objective preference for continuity but ensuring such continuity requires the ongoing mobilization of political support as well as, often, active efforts to resolve institutional ambiguities in their favor' [10]. Thus, institutional change may occur when there is a shift in the balance of power, either 'through changes in environmental conditions that reshuffle power relations or unforeseen changes in the ongoing distribution of resources'. Overall, historical institutionalism provides a powerful framework for analyzing institutional changes and employs a historical-descriptive methodology, relying on process tracing and 'analytic narratives … to construct explanations of empirical events through analyses that 'respect the specifics of time and place'' [8, 5]. The historical institutionalism framework is used to analyze the evolution of BECC and NADBank and relies primarily on archival records and secondary sources.

**Multilateral Development Institutions**

International or multilateral institutions are important mechanisms for pursuing collective action between states at the global, regional, and subregional levels [11]. During the post-World War II era, there has been a proliferation of these institutions to address a wide range of problems, and perhaps some of the most consequential have been multilateral developments banks or institutions [12], created to foster the economic and social development of countries around the world [13, 14]. These multilateral institutions have been supplemented by national development institutions established by many countries to fund projects within their own territories[13], and collectively, these institutions have provided hundreds of billions of dollars in funding for capital and non-capital projects since the first institution, the IBRD, was established in 1944 [15]. Since then, the number of multilateral institutions has proliferated [16] and today these institutions finance a wide variety of projects in countries of all income levels [17].

These institutions were created during different eras, and each has its own unique mandate. For example, the IBRD, established at the close of World War II, was initially focused on reconstruction of European countries after the war and then shifted to lending to middle-income developing countries that had limited access to private capital [14]. Numerous regional development banks were subsequently created during the de-colonization era of the 1960s and 1970s to support development in newly independent states [17]. Then in the 1990s, several new institutions were established 'after the end of the Cold War to support reconstruction, development and regional integration' of former communist countries[17]. More recently new development institutions have been established under the leadership of China and other emerging economies to provide a counterweight to those institutions dominated by the U.S. and other developed countries [18].

Although each development institution may vary in its membership, geographic and sectoral remit, and the like, the banks typically have two over-arching goals in common. The first goal is fostering general economic and social development of the borrowing countries and the second goal is promoting regional cooperation, economic integration, and trade within their sphere of influence or among member countries [18]. In fulfilling these goals, the institutions may provide either concessional or non-concessional financial assistance, or both, to their clientele [17]. Research on the effectiveness of these institutions in fostering the desired economic and social development has provided mixed results, and the less-than-ideal outcomes are often attributed to numerous shortcomings identified for the institutions over the years.

Some of the more persistent criticisms of the development institutions include the existence of a pervasive 'lending culture' that is focused on getting money out the door rather than developing implementable and sustainable projects that produce beneficial results [15, 19, 20] inadequate consideration of adverse environmental and social impacts during project appraisal and development [15, 19, 21, 22, 23] a general of lack transparency, and insufficient involvement of the communities most directly impacted by the projects [15, 18, 24, 25, 26]. In addition to these long-standing shortcomings, larger systemic problems have been identified more recently, including a lack of coordination and clear division of labor between the multitude of existing development institutions [18, 27], slow adaptation to the 'growing sophistication and capability of their borrowers'[12], shareholder misalignment, and outdated corporate governance structures [28]. Lastly, there has been an across-the-board lack of emphasis on sustainable development in financing programs [29, 30].

Over the years, various reforms have been instituted at these institutions to address some criticisms, but they have often fallen short of the institutional innovations sought by advocates [14, 31, 32, 33]. Transforming well-established institutions is difficult, but some far-reaching innovations were put into practice when BECC and NADBank were created. In general, these two institutions provided a microcosm for testing important institutional innovations and reforms, including mechanisms for increased public participation into institutional decision-making, bifurcation of project development and financing functions, and an overriding mandate to support sustainable development. These institutional innovations received much acclaim when BECC and NADBank were created, however, they eventually proved to be problematic or ineffective in practice and have since been eliminated. The following background on their institutional designs provides additional context for understanding their evolution over time.

**Origin and Institutional Design of BECC and NADBank**

BECC and NADBank were created in response to concerns that the North American Free Trade Agreement [34] would exacerbate already dire environmental conditions in the U.S.-Mexico border region [35, 36]. Prior to NAFTA, the border region had experienced rapid industrialization and population growth, but this development had occurred without adequate environmental safeguards, in particular infrastructure to manage the wastes and control pollution associated with the development [37, 38, 39, 40]. To forestall further degradation and improve existing environmental conditions as trade was liberalized between the countries under NAFTA, the U.S. and Mexico established BECC and NADBank to develop and finance environmental infrastructure along the border. Without a doubt, these two institutions were borne out of political necessity [41, 42], but despite this fact, careful attention was paid to their institutional design, which incorporated several innovative features to address typical shortcomings of other development institutions in response to demands from border constituencies.

Given the well-documented environmental degradation in the border region, there was general support from the start for some kind of institutional mechanism to finance environmental infrastructure projects along the border [43, 44, 45, 46]. However, the initial proposal for a new institution consisted of a regional development bank and adjustment assistance fund that would finance long-term development in the relatively poorer Mexico as well as structural adjustment in all three NAFTA countries [47, 48, 49]. Envisioned mostly as a conventional development bank, this institution would rely on paid-in and callable capital from the U.S., Mexico, and Canada [50] that could be leveraged to borrow funds on the global capital markets [51]. The funds would then be used to finance projects that private capital markets did not service well but would not compete with or displace private investment in the region [51]. The institution would also complement rather than compete with other multilateral financing institutions, such as the Inter-American Development Bank (IADB), and financing would be at market rates to ensure that the institution was financially self-sustaining and minimize a need for periodic replenishments from the countries, which was a key concern [52].

Although this initial proposal did not receive much political support, the U.S. used it as a basis for identifying several other institutional forms for delivery of the financing, some with a broader remit than others [53]. In addition to the standalone development bank concept, other options included incorporating a North American lending facility into the existing IADB, granting bonding authority to the existing International Boundary and Water Commission (IBWC), granting bonding authority to an anticipated new trinational environmental commission, the North American Commission for Environmental Cooperation (CEC), being negotiated to address the broader NAFTA environmental concerns, and lastly, appropriating monies directly through the annual national budget processes[53]. While considering the different institutional forms for the funding mechanism, the countries also grappled with the geographic remit for the funding mechanism, scope of eligible projects, requirements for profitability, and overall funding levels [50]. Each option had its unique advantages and disadvantages [50, 54, 55, 56].

For example, using the CEC to administer the financing would allow for coordination through a regional institution with environmental expertise but would require recasting CEC as a financing institution and limit financing to only environmental projects [50, 54, 55, 56]. Using the IBWC for the financing would allow for use of an existing institution but would likely require a change to the treaty that established the agency as well as be opposed by many communities and environmentalists from the border region because of their past experience with the agency, which was viewed as unresponsive, unaccountable, and closed to input [50, 56]. A new lending facility within the IADB would allow for greater leveraging of capital, draw upon existing staff and expertise, result in lower start-up costs, and avoid creating a new bureaucracy, but would require a change to the IADB's charter in order to fund projects in the U.S. or Canada and would likely be opposed by environmentalists' due to their general distrust of existing development institutions [50, 56]. A new standalone development institution would overcome some of the shortcomings of the other options but would have large start-up costs, require further negotiations between the NAFTA countries, and would face some political distrust from existing development institution [50, 54, 55, 56].

Some of the options being considered were rendered infeasible or impractical once Canada declined to participate as negotiations started in earnest [57]. With Canada out of the picture, the U.S. and Mexico eventually agreed to create two new binational institutions, BECC and NADBank, which would be focused only on environmental infrastructure projects in their shared border region. Based on the estimated infrastructure gap at the time, NADBank was provided $3 billion in paid-in and callable capital[1] and at Mexico's insistence, the capital contributions were equally split between the U.S. and Mexico, to ensure that Mexico would be treated as an equal rather than junior partner in overseeing NADBank [42]. NADBank financing would be on non-concessional terms and partnered with a mix of locally generated private and public capital and repaid with user fees from constructed facilities [45, 58]. The two institutions would focus on drinking water, wastewater, and solid waste infrastructure to address ongoing environmental problems rather than the costlier clean-up of contaminated sites [45].

Overall, BECC and NADBank were intended to function as a traditional development institution but their design incorporated several institutional innovations to address the generally perceived shortcomings of existing multilateral development institution. The major innovations included: 1) institutional bifurcation and creation of two separate but linked organizations, one responsible for project development and appraisal and the other for project financing [59], 2) subordination of the project financing function to the project development and appraisal function [60], 3) institutional mechanisms to promote transparency and community and stakeholder input into project development and appraisal [38, 56], and 4) a mandate to promote sustainable development. At the same time, however, the two institutions were given a narrow geographic and sectoral mandate [61], and project financing was restricted to market interest rate loans or loan guarantees [60]; both of these features were intended to minimize the financial commitment required by the U.S. and Mexico to sustain the institutions over the long-term. Lastly, the institutions would not provide assistance to national governments, only to subnational governments or other public or private entities [60]. Although some aspects of their institutional design of were conventional, the more novel features were widely praised and the focus of much attention when they were created.

The most innovative feature of BECC and NADBank was their institutional bifurcation. Traditional development institutions consist of a single organization that evaluates the technical, social, environmental, and economic merits of a development project as well as arranges for project financing[62]. Historically, the emphasis of these institutions has been on moving money out the door, thus, projects that may not be justified on social, environmental, or even economic grounds are nonetheless funded, often leading to adverse outcomes [62]. The bifurcation was intended to address this shortcoming by creating a separate institution, BECC, to independently evaluate the environmental, social, and economic merits of a project against certain criteria [63] without any influence from financing decisions, '….the more public-oriented BECC was made separate from its financial institution cousin to avoid it being driven by finance considerations only NADBank was limited to only financing projects certified by the BECC to assure that only sustainable development projects were financed. This focus makes the BECC/NADBank structures unique in the world of development-banks by reversing the priorities' [59, 62, 64]. Only after a project was certified by BECC would it be eligible for financing from NADBank [1, 62]. As a result of this bifurcation, the project financing function of NADBank would be subordinated to the project appraisal function of BECC, which was in principle responsible for both developing and appraising projects as well as arranging the overall financing packages [1].

Another important institutional innovation was the inclusion of mechanisms in BECC to promote transparency and public and project sponsor input into the project appraisal and development process, the lack of which had been a frequent criticism of IBWC [38, 56, 60], as well as development banks more generally [68]. One mechanism to promote public input was the inclusion of members of the public on the binational BECC Board of Directors. The ten-member Board was comprised of representatives from national, state and local governments as well as members of the general public[1]. In addition, BECC had a binational advisory council comprised of representatives from local and state governments, non-governmental organizations, and members of the general public to advise the Board as well as BECC senior management[1]. Moreover, in accordance with its charter, BECC established detailed procedures for appraising and certifying projects, and under these procedures, each project sponsor was required to establish a steering committee to conduct public outreach and meetings and solicit input on projects [1, 65]. These procedures and certification criteria were 'based on guidelines set forth in the agreement creating BECC and NADBank and through extensive public input' [65].

The last innovative institutional feature of BECC and NADBank was the focus on sustainable development. Although sustainable development is only mentioned in the Preamble to the BECC/NADBank Agreement, it was generally envisioned that sustainable development would be a guiding principle for the institutions and BECC subsequently established specific project certification criteria for assessing sustainable development for all its projects [66].

## BECC and NADBank Institutional Evolution

When BECC and NADBank were created in 1993, expectations were high that these two institutions would finally improve environmental conditions along the border that had been sought for so many years [67]. It was anticipated that the two institutions would be more effective and responsive to the needs of the border communities due to their institutional innovations [67]. BECC and NADBank were 'designed, from the very beginning, to overcome underlying structural and institutional hurdles to effective environmental protection programs in the border area' [67]. Unfortunately, the shortcomings of these institutions became readily apparent shortly after they became fully operational in 1996, shortcomings that limited their effectiveness to develop projects in a timely manner as well as to fully utilize NADBank's capital.

The major structural and operational problems included: 1) lack of cooperation and coordination between BECC and NADBank due to their unwieldly design and bifurcation, 2) uncoordinated, time-consuming, and onerous project appraisal, development, and financing processes, and 3) under-utilization of NADBank's capital [69, 70, 73]. Other notable shortcomings included their narrow sectoral and geographic mandate and requirement for financial assistance on non-concessional terms only. The emergence of these shortcomings coincided with a marked decline in political attention on the border region in the post-NAFTA era as well as a waning of interest and political power of border constituencies that had supported their creation. The U.S. and Mexico took advantage of this power shift and began to implement reforms to transform BECC and NADBank into a more conventional development institution.

Initial efforts to improve the institutions began as early as 1998, which were followed by NADBank's efforts in 2000 to identify and implement options to better utilize its lending resources [71]. Shortly after in 2001, the U.S. and Mexico governments formally evaluated more extensive reforms that would allow 'both institutions to reach their full potential'[73]. Some of these more far-reaching reforms were approved in 2002 [72] and implemented in the mid-2000s. Additional reforms were initiated in 2011 [74, 75] and completed in 2017, when BECC and NADBank were fully merged together [76]. The following provides a more detailed historical-descriptive analysis of the innovative institutional structures of BECC and NADBank and their evolution.

## Institutional Bifurcation

The institutional bifurcation was perhaps the most innovative institutional feature of BECC and NADBank but the separation of institutional mandates in separate agencies created considerable tension between the two institutions as they sought to fulfill their respective responsibilities for project appraisal, development, and financing with a high degree of independence. The two institutions developed a 'contentious' relationship' [77, 78] shortly after they became operational, that lead to serious problems with coordination that persisted despite efforts by the governments to facilitate better relations [69]. This tense relationship hindered their ability to effectively move projects from conception to completion, contrary to expectations [62].

As a practical matter, there was nothing in their institutional design that explicitly impeded cooperation; however, there were no formal institutional linkages that facilitated cooperation either, beyond the overlap of one Board member[1] and BECC's role as gatekeeper for NADBank financing. In general, the lack of cooperation between the two institutions was due in large part to the delineation of separate institutional mandates. While it was envisioned that the 'sister' institutions would work closely together, their institutional design afforded them a high degree of independence from each other in carrying out their mandates, which in turn gave rise to the problematic and often competitive relationship; 'the separation of the functions of the BECC and the NADBank was intended to create a positive tension between the two organizations. … There have been instances of tension which approach destructive competition' [62].

In general, the institutional bifurcation inhibited cooperation for several reasons. First, there were the normal challenges associated with interagency coordination between two independent organizations located in two different cities with two separate boards of directors [73]. Second, many of the projects approved by BECC were not bankable, making it difficult for NADBank to fully utilize its capital. In accordance with its mandate, BECC focused on developing environmental infrastructure projects that required a high degree of subsidization, which often created an expectation that communities would receive considerable grant financing for their projects [61]. However, NADBank was either unwilling or unable to provide the funding; after the project was approved, NADBank would 'have to be the bad guys and say, no, you cannot get that much money' [61]. Most communities could not afford market interest rate loans from NADBank, limiting its ability to finance projects it was created to support.

Third, there were competing efforts to complete financial feasibility analyses, with NADBank undertaking its own analysis rather than relying on the analysis or studies completed by BECC[79]. BECC, for its part, resisted giving up any of its institutional prerogative to conduct the entire project development and appraisal process, including the financial feasibility assessments. In general, the institutional bifurcation created 'conflicting and overlapping roles of NADB and BECC' [80, 81, 82], which inhibited cooperation between the institutions and bled into their overall institutional relationship [75]. In fact, 'the division between BECC and NADBank suggests a powerful flaw in the design of the institutions' [81] and '[a]t the time [BECC and NADBank were created], we criticized the separation, predicting that the commission and the bank would often work at cross purposes, and that they would be grounded in two contradictory world views-that of bankers and that of environmental officials. It didn't take long for the fissures to become manifest' [82].

Both institutions recognized the need for better coordination [83], but were reluctant cede any of their institutional authority [81, 85]. Initial efforts to improve cooperation did little to relieve the tensions [85]. The high-level binational review of BECC and NADBank in 2001 considered several reforms, including transferring some of the key project development and technical assistance functions from the BECC to NADBank, and most significantly, the merging of their Board of Directors into a single board [86, 87]. Some of the proposed changes were strongly opposed by environmental groups and border communities for fear that BECC would lose its independence to develop projects in a manner that involved a high degree of public participation, sustainability, and transparency [88, 89].

Nonetheless, the two countries agreed in 2002 to merge the Boards of Directors; their charter was amended in 2004 and the merger completed by 2006 [90]. It was anticipated that 'a single board has allowed for improved coordination between the two institutions. [resulting] in shortened timeframes for project development, financing and implementation, and faster rates of disbursement' [91]. As part of this merger, the BECC binational advisory council was also eliminated, which 'sharply restricted NGO participation in BECC's policy making and NGOs' opportunity to shape its agenda' [92]. The merger of the Boards served to improve the coordination between the two institutions to some degree and set the stage for more far-reaching reforms, which occurred in 2013 when the U.S. and Mexico subsequently proposed merging BECC and NADBank together into a single institution. The proposal for full merger was approved by the two countries in 2014, phased in over three years, and formally concluded in 2017 [74, 75, 93]. Under the full merger, BECC was subsumed by NADBank and is considered a subsidiary, although it may continue to operate with some degree of independence [94, 95]. The merger of BECC and NADBank brought the structure of the new institution more in line with traditional development banks.

**Project Appraisal, Certification, Development, and Financing Processes**

The formal institutional merger of BECC and NADBank's Boards of Directors was an important first step for improving cooperation between the two institutions [91]. However, because the institutions remained separate and independent, there was still a need 'to streamline processes and improve coordination in their project development activities' [96], which were characterized as lengthy, burdensome, and complex [81]. Starting in 1998, BECC unilaterally implemented several organizational changes, including organizational restructurings, and procedural reforms to streamline its project appraisal and development processes, such as preparation of a detailed project management procedures manual, establishment of a Rapid Assessment Process, preparation of a project development manual, and reduced the public participation requirements for project approval [83, 97-101].

In 2004, a review of internal business processes for both BECC and NADBank [100] identified the need for increased integration of their project's cycles, more clearly defined roles and responsibilities of each institution, and inclusion of financial feasibility in the early phase of the project application process[102]. These changes were put into practice in 2006, resulting in closer coordination between BECC and NADBank from the beginning of project development process such that project certification and approval of financing occurred at the same time [91, 103]. As a result of these changes, NADBank's financial analyses became more closely integrated into BECC's project appraisal and development process, with the goal of making them nearly 'seamless' [97-98].

Despite the many changes and improvements to streamline and integrate the BECC and NADBank processes, the bifurcation of institutions still proved to be more problematic than beneficial. In 2011, the two institutions acknowledged the need to operate as a single institution and 'establish a fully unified development and implementation process for projects' [75]. The decision to fully merge the institutions in 2014 was driven in large part by the need to fully integrate their respective processes, especially for private sector projects [104]. For over 20 years, BECC and NADBank had sought to retain their independence while fulfilling their respective mandates, but with the full merger in 2017, the two institutions finally recognized that complete institutional integration was needed to ensure projects would be holistically developed, appraised, and financed.

**Public Participation Mechanisms**

The institutional mechanisms to promote public participation during the project development and appraisal processes received considerable attention when BECC and NADBank were created as well as after they became operational from the border constituencies, because in principle, they provided multiple avenues for direct input of affected stakeholders [62, 81, 105, 106]. However, in practice, these mechanisms may have had limited impact on project outcomes and agency decision-making [106]. For example, the requirement that project sponsors establish steering committees and hold public meetings for each project may have resulted in useful input in some communities, but in other communities, the process was manipulated to meet the letter but not the intent of the public involvement process and appeared to be 'little more than window dressing to fulfill the requirements' of BECC [107]. The public participation mechanisms had been a high priority of the border environmental groups but 'despite new opportunities given to advocacy groups to argue for larger environmental concerns, their impact on the BECC decision-making process is minimal' [108].

Public participation was probably the most useful when BECC needed to verify the 'financial feasibility of the project in terms of the likelihood of community payment of the necessary user fees' [67] and was more essential when the concept of engaging the public in Mexico was new. However, as the limited effectiveness of the mechanisms became apparent, there was a decline in advocacy groups' interest in BECC and NADBank [109]. This decline, in turn, lead to a questioning of the relevance of the mechanisms and ultimately their reform. The BECC binational advisory council was eliminated when the BECC and NADBank Boards were merged in 2006 and at that same time, the number of representatives from subnational governments and public on the new Board was reduced. The requirements for a mandatory steering committee and public meetings for each project were later eliminated when the project certification criteria were updated [101]. In general, these reforms did not necessarily address any shortcomings of BECC or NADBank but were intended to streamline the overall operation of the institutions and the overall project development, appraisal, and financing processes.

**Sustainable Development**

Although BECC and NADBank were responsible for the development and financing of basic environmental infrastructure, such as water or wastewater treatment plants, their purported commitment to advancing sustainable development loomed large in the public mind [67, 110]. BECC was perhaps the first development institution to explicitly include sustainable development criteria for evaluating projects for implementation[63]; however complying with the criteria did not markedly change the substantive elements of a project [81, 111]. Moreover, the sustainable development criteria sometimes contributed to a misunderstanding amongst the public that BECC could serve as an 'instrument for moderating unplanned growth in the border region' [81], which in reality it had no authority to do. In 2012, the project certification criteria were revised, and the sustainable development criteria was deleted, and only the conventional environmental, technical, and financial criteria remained [101].

**Under-Utilization of NADBank Capital**

Although the innovative institutional features of BECC and NADBank proved to be problematic or of limited use in practice, some their conventional features likewise proved to be problematic. The most significant was the requirement for NADBank to provide market interest rates financing for projects, which lead to the gross under-utilization of its capital [39]. In general, NADBank was designed to 'encourage the maximum participation of private capital and primary reliance on fees paid' in accordance with the polluter pays principle [112]. However, potable water and wastewater infrastructure had historically been heavily subsidized in both the U.S. and Mexico and very little, if any, infrastructure was funded with market interest rate loans. Nonetheless, it was believed that NADBank would reduce and supplant grant financing for border infrastructure projects [112-113], leading 'to projects that are fiscally sound, financed under competitive market conditions, and serviced by user fees or other revenue' [52]. This belief, however, was inconsistent with the reality on the ground, because most communities in the border region were low income and simply could not afford loans from NADBank and service high levels of debt; 'because of the low income levels of border communities, both countries have recognized that the ongoing availability of grant funds and low-interest loans from both sides of the border that could be combined with NADBank funds was essential to make environmental infrastructure projects financially viable' [38, 39]. According to a review of NADBank financing, 'Bank officials admit that its loans cannot compete with rates larger U.S. communities can obtain through the State Revolving Fund or issuance of tax-exempt municipal bonds', moreover, small U.S. communities with limited tax bases and colonias with no tax bases do not qualify for NADBank loans [113]. As such, on both sides of the border, NADBank market interest rate financing was either unattractive or out of reach for almost all communities [39].

The lack of affordability of NADBank's financing for many border communities became apparent as soon as BECC began to certify projects. In response, the two countries and NADBank sought ways to improve the affordability of infrastructure projects without requiring changes to the BECC and NADBank charter. The first and perhaps most significant effort was establishment in 1997 of the Border Environment Infrastructure Fund (BEIF) grant program using funds from U.S. EPA's U.S.-Mexico Border Water Infrastructure Program in 1997. This grant program was administered by NADBank for water and wastewater infrastructure and funds could be used on both sides of the border, but projects in Mexico had to have a transboundary environmental benefit for the U.S. [114-115]. In general, the BEIF funds could be used to 'buy down' the costs of NADBank loans [87, 115]. The BEIF funds were substantial and proved to be critical to funding many water and wastewater infrastructure projects certified by BECC over the years [116]. But even with this grant funding, the vast majority of NADBank's capital remained virtually untapped [71] due to the 'severely limited credit capacity of the water utilities; the constitutional and structural impediments to lending on the Mexican side; the difficulty of competing with municipal bond markets on the U.S. side; and the restrictions imposed by certification and lending rules' [91].

By 1999, NADBank 'faced with mounting criticism of its inability to make loans affordable to border communities' and utilize its capital, NADBank implemented limited changes in 2000 [71, 85] to enhance its ability to fund projects, including an expansion of the environmental infrastructure projects or sectors eligible for certification by BECC and creation of new financing programs [87]. In 2002, based on the high-level review of more far-ranging reforms of BECC and NADBank [88] the countries agreed to expand the 'geographic scope for BECC/NADBank operations in Mexico from 100 to 300 km. from the border' as well as expand NADBank's 'concessional financing by doubling its Low Interest Rate Lending Facility and increasing its capacity to provide grants out of its own resources' [70]. At the same time, NADBank was encouraged to pursue 'a more concerted effort to certify and finance private sector environmental projects' [70]. All these changes were intended to increase utilization of NADBank capital and were implemented in the mid-2000s. Since these changes were completed, NADBank has funded more private sector infrastructure projects and projects in other sectors beyond the priorities of drinking water, wastewater, and solid waste, resulting in increased utilization of its capital [116]. As a result, NADBank has been able to use some of its increased earning to provide more concessional lending and grants but nonetheless, there remains a significant need for continued subsidized financing of drinking water, wastewater, and solid waste infrastructure in the border region [116].

**Conclusions**

BECC and NADBank were established to support implementation of environmental infrastructure projects in the U.S.-Mexico border region. The two institutions were modeled after a traditional multilateral development institution but differed notably in their institutional bifurcation, mechanisms to promote local community and public input in the project development and appraisal processes, and focus on sustainable development. These novel institutional features were intended to address long-standing shortcomings of traditional development institutions. At the same time, NADBank was prohibited from providing concessional lending or grants from its earnings, which was consistent with other banks that provide financing to upper-middle or high-income countries such as Mexico and the U.S., respectively. However, these two institutions were given a very narrow geographic and sectoral mandates, much more so than other development institutions, but these mandates were driven largely by political considerations.

Given their unique institutional structures, it was anticipated that BECC and NADBank would be able to effectively address the environmental infrastructure gap in the border region, working closely with local communities and stakeholders and leveraging NADBank's capital to fund environmentally sustainable projects that were well-matched with the technical, fiscal, and institutional capacity of the recipient community. However, almost immediately after the two institutions became operational it became clear that the institutional features that were attractive in principle were problematic in practice. As a result, the institutions evolved notably over the course of nearly 25 years, enabled by a shift in political power between border constituencies and the governments of the U.S. and Mexico. As a result of this evolution, the most innovative features of the institutions disappeared and today, the merged institution, NADBank, resembles a traditional development bank. In retrospect, it seems clear that the institutional design of BECC and NADBank was flawed in a number of ways, but even so, this experiment in institutional innovation provides some important insights for the reform of existing or creation of new development institutions.

One of the obvious insights is that the separation of the project development and appraisal mandate from the project financing mandate is difficult to implement in practice when the mandates are carried out by two separate and independent institutions. The overall objective of the bifurcation was to ensure that the priority of a development institution is to support technically, economically, socially, and environmentally sound projects that will produce beneficial results rather than merely move money out the door. That objective clearly remains but it will be difficult to achieve if the financing mandate is completely divorced from the project development and appraisal mandate, as occurred with BECC and NADBank. In general, some degree of institutional integration is needed to ensure that their priorities are aligned but this integration needs to be done in a manner that subordinates the financing mandate to, rather than completely divorces it from, the project development and appraisal mandate. It remains to be seen if the merging of BECC and NADBank has achieved this integration.

Another insight from the BECC and NADBank experiment is that opportunities for public participation and stakeholder input are important, but institutional mechanisms should allow for flexibility to adapt to the context. In general, the mechanisms incorporated into BECC appear to be overkill given that most of the projects it developed were non-controversial, consisting of drinking water, wastewater, and solid waste facilities that were intended to address well-documented public and environmental health risks. On occasion, the location or financial impact of a project may have been a concern for a particular community, but the requirements for public outreach and involvement too often became merely an exercise in checking a box. Similarly with the presence of a large binational advisory council and public representatives on the Board, it wasn't clear if there really was a pressing need for such extensive public participation mechanisms when so much of the work supported by BECC was non-controversial. There should be some requirements for public participation and involvement in projects overseen by development institutions, but the extent should be determined by the nature of the project and its potential impacts rather than a one-size-fits-all requirement. Similarly, the presence of public representatives on a governing Board can be useful for introducing public input into the decision-making process and a stakeholder-oriented advisory council is likely be most effective if focused on dealing with controversial projects, functioning similar to an ombudsman.

A final insight, and perhaps the most relevant for BECC and NADBank, is that the lending window established needs to be well-matched to the substantive institutional mandate. In the case of BECC and NADBank, there was a clear mismatch between the non-concessional lending requirements and the mandate to fund environmental infrastructure, such as water and wastewater facilities. Although the requirement for non-concessional lending may seem justified because projects were being implemented in upper-middle income and high-income countries, as a practical matter, these types of projects have historically been heavily subsidized in both countries. Additionally, the need for concessional lending and grants was even more of an imperative for the low-income, non-creditworthy border communities. The institutional reform to expand the sectoral and geographic mandates for BECC and NADBank was intended to increase the utilization of NADBank's capital, which occurred, but the reforms have not resulted in increased financial support for water, wastewater, and solid waste projects[116]. While a mismatch between a lending window and projects financed may not be a problem for all development institutions, for projects that do require subsidization or for financing to low-income communities, the lending window needs to be designed to match the context.

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