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Keari Platt

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An Electronics Eco-Labeling System for Reducing Toxic Wastewater Runoff in the Tijuana River Estuary

*Keari Platt**

ABSTRACT

The wastewater pollution crisis at the United States-Mexico border garners renewed attention every few decades as sewage and toxic runoff overburden treatment facilities in the border region, polluting the Southern San Diego County coastline. Following several years of increasingly catastrophic sewage discharge incidents, the City of Imperial Beach filed suit against the federal government, alleging that the United States Section of the International Boundary Water Commission's frequent discharge of pollutants into the Tijuana River violated the federal Clean Water Act and the Resource Conservation and Recovery Act. The lawsuit prodded the federal government to appropriate \$300 million to the Environmental Protection Agency (EPA) to respond to the issue. In 2020, the EPA proposed the Comprehensive Infrastructure Solution—a suite of wastewater infrastructure projects along the border—to capture and treat runoff in the Tijuana River Valley through 2050.

This paper assesses the EPA's Comprehensive Infrastructure Solution to determine whether it legitimately addresses underlying causes of toxic wastewater runoff in the border region. In doing so, this paper posits that the maquiladora industry—through binational free-trade agreements, exploitative consumerism, and private enterprise—has a significant role in the unabated dumping of toxic waste into the environment. Recognizing the promise of economic opportunity that maquiladora employment provides, this paper suggests that in addition to the EPA's proposed infrastructure projects, private environmental governance strategies could ameliorate harms experienced by maquiladora workers and residents on behalf of large, multinational corporations. This note suggests that strategies such as private certification and ecolabeling might address the issue by demystifying the role of maquiladoras in the supply chain, while empowering stakeholders and consumers alike.

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INTRODUCTION

With just the click of a button, Americans can purchase foreign-made products and have their orders quickly shipped to their homes. Whether buying electronics, clothing, or whatever else they desire, consumers may rarely consider how or where their goods are manufactured – so long as they are affordable and delivered on time.

While often unintentional, the “out of sight, out of mind” cognitive bias describes the tendency for humans to experience apathy towards geographically or temporally distant issues.¹ For example, when people feel detached from a crisis, they tend to lack as much empathy as they would have if they were geographically proximate to the catastrophe.² This mode of thinking also affects consumer decision-making – studies find that in more developed countries where consumers are less likely to experience environmental impacts associated with manufacturing, they are also less likely to worry about those effects when making purchases.³

Despite the prevalence of the “out of sight, out of mind” bias, most Americans report a preference for sustainably manufactured products.⁴ Even with the surge in online shopping and demand for next-day shipping during the COVID-19 pandemic, polls indicate that consumers want greater transparency about ethical sourcing within supply chains.⁵ Unfortunately, though, it is difficult to detangle complex, international supply chains to understand the consumer industry’s impacts upon communities and the environment; particularly when those impacts seem isolated and unknown. So, what happens when American citizens are affected by environmental impacts associated with the manufacture of their purchases?

The “decades-long wastewater pollution crisis” at the Tijuana – San Ysidro border presents a unique problem in that it affects both Americans and Mexicans living near the Tijuana River Valley.⁶ Due to untreated

1. Arianna Schiano Lomoriello, et al., *Out of Site Out of Mind: Perceived Physical Distance Between the Observer and Someone’s Pain Shape’s Observers Neural Empathic Reactions*, FRONT. PSYCH. (Oct. 2018), <https://perma.cc/PT76-M65D>; Hannah Kleinpeter, *Opinion: Geographic Proximity to Disasters Dictates Public’s Level of Empathy*, REVEILLE (Oct. 4, 2017), <https://perma.cc/FR8U-7K5P>.

2. Kleinpeter, *supra* note 1.

3. Melaina Vinski, *Out of Sight, Out of Mind: How Businesses Can Tackle Future Discounting to Enable Sustainable Consumer Behaviour*, GLOBE SCAN (Dec. 11, 2013), <https://perma.cc/9DCM-X3ED>.

4. A recent study showed that “nearly 70% of consumers in the U.S and Canada think it is important that a brand is *sustainable* or *eco-friendly*.” See Dinara Bekmagambetova, *Two-Thirds of North Americans Prefer Eco-Friendly Brands, Study Finds*, BARRON’S (Jan. 10, 2020, 8:00 AM) (emphasis added), <https://perma.cc/6G43-3XNU>.

5. Steve Banker, *Do Consumers Care About Ethical Sourcing?*, FORBES (Oct. 5, 2021), <https://perma.cc/RUU2-4SXE>.

6. Bianca Bruno, *Public Weighs Potential Fixes to Plug Sewage Problem at US – Mexico Border*, COURTHOUSE NEWS SERV. (Apr. 20, 2021), <https://perma.cc/QG84-HD4G>.

sewage and overburdened sewage treatment plants, “the Tijuana River carries untreated wastewater, trash, and sediment from Mexico across the border into the United States.”⁷ The untreated wastewater not only degrades the Tijuana River Estuary, an internationally recognized “Wetland of International Importance” as designated by the United Nations, but it also poses serious health risks to residents. Because of the risks, incidents of polluted transboundary wastewater flows constantly result in mandated beach closures, reduced tourism, and political turmoil for both countries.

Due to rapidly increasing population in the region—attributed to several factors—the United States and Mexico have been caught in a cycle of constructing, repairing, and expanding wastewater treatment plants since the 1930s.⁸ The issue, however, garnered renewed political attention in February 2017 when one of Tijuana’s main sewage collectors collapsed, discharging “more than 143 million gallons of raw sewage” into the Tijuana River.⁹ The City of Imperial Beach later filed suit against the United States Section of the International Boundary and Water Commission (IBWC) in March 2018.¹⁰ The City of Imperial Beach alleged that the IBWC’s frequent discharge of pollutants into the Tijuana River violated the federal Clean Water Act (CWA) and the Resource Conservation and Recovery Act.¹¹

Ultimately, the lawsuit successfully prodded the federal government to invest in a comprehensive water infrastructure program for addressing transborder

7. EPA Announces Holistic Approach to Address Water Pollution from the Tijuana Watershed, ENV’T PROT. AGENCY (Nov. 8, 2021), <https://perma.cc/VPT6-DZ7Z>.

8. See, generally Gustavo Solis, *Pandemic, San Diego’s High Costs Have Spurred A Migration South*, KPBS (Mar. 7, 2022), <https://perma.cc/PQN7-78M3> (attributing Tijuana’s increased housing costs to a spike in population); *More Californians Turn to Tijuana for Affordable Housing*, MEX. DAILY POST (Feb. 11, 2022), <https://perma.cc/2XVC-8TFX> (describing the lower cost of living during the Covid-19 pandemic); Rita Schmidt Sudman, *Commentary: Tainted Water and the Tijuana River – A Border Tragedy*, WATER EDUC. FOUND. (Sept. 8, 2021), <https://perma.cc/2NFB-DL8X>; Wendy Fry, ‘This is a crisis’: Tijuana Sees a Surge in Migrants Seeking Asylum in the U.S., L.A. TIMES (Oct. 22, 2018), <https://perma.cc/AJT3-CNWX> (highlighting an increase in refugees seeking asylum in the United States); see also Kevan Q. Malone, *San Diego and Tijuana’s Shared Sewage Problems Has a Shared History*, WASH. POST (June 6, 2020), <https://perma.cc/3B8U-GZMF> (providing an overview of historical events affecting Tijuana’s population).

9. Scott Ridout, *Tijuana River: The Largest Sewage Spill We’ve Ever Seen*, SURF-RIDER FOUND. (Mar. 2, 2017), <https://perma.cc/AJ8M-XG89>.

10. *City of Imperial Beach v. Intl. Boundary and Water Comm’n*, U.S. Sec., 356 F. Supp. 3d 1006, 1010 (S.D. Cal. 2018); the IBWC is a binational agency established in 1889 to oversee “boundary and water treaties between the United States and Mexico.” Following the 1944 Treaty for “Utilization of Waters of the Colorado and Tijuana Rivers and of the Rio Grande,” the IBWC is obligated to resolve border sanitation and water quality problems. Int’l Boundary & Water Comm’n U.S. Section, *International Boundary & Water Commission, It’s Mission Organization and Procedures for Solution of Boundary and Water Problems*, <https://perma.cc/JS93-ZYRX> (last visited Oct. 29, 2022).

11. *City of Imperial Beach*, *supra* note 10, at 1010.

water pollution in the Tijuana River Valley.¹² With the implementation of the United States-Mexico-Canada Agreement (USMCA) to replace the North American Free Trade Agreement (NAFTA) in 2020, Congress appropriated 300 million dollars to the Environmental Protection Agency (EPA).¹³ Tasked with coordinating the “construction of high priority wastewater facilities” at the United States – Mexico border, the EPA developed a “Comprehensive Infrastructure Solution” (the Solution).¹⁴ The Solution includes a series of projects anticipated to treat wastewater and meet population demands through 2050.¹⁵ The EPA estimates that, when completed, the Solution will cost \$627 million to construct, not including annual maintenance and operation costs.

While the Solution provides an immediate fix for the current disaster, the price tag and relatively short lifespan call into question whether it *is* a long-term solution. The Solution is consistent with the nearly century-old approach at the border—a cycle of building upgraded wastewater treatment plants when the problem reemerges and worsens every few decades. Unfortunately, this cycle is not a genuine fix or a long-term solution. In search of answers, researcher Kevan Q. Malone suggests that to solve the border wastewater crisis, politicians must recognize that the issue is “rooted in a longer history of U.S. imperialism and private enterprise.”¹⁶ So, perhaps a legitimate solution involves addressing underlying factors that contribute to wastewater pollution in the Tijuana River Valley.

Of the many factors contributing to the wastewater issue, the maquiladora industry is foremost in both increasing the population at the border and polluting the surrounding environment. In pursuit of economic prosperity, Mexicans from throughout the nation migrate to the border region to work at the maquiladora plants.¹⁷ Unfortunately, in Tijuana, and in most areas, the local infrastructure cannot sustain large-scale factories or a sudden influx of people. The maquiladoras sitting above the Tijuana River regularly contribute to “renegade flows” of untreated wastewater and hazardous waste that bypasses or evades Tijuana’s overburdened sewage treatment system.¹⁸ As a result, the Tijuana River Estuary has the highest

12. ENV’T PROT. AGENCY, *supra* note 7.

13. U.S.-Mex.-Can. Agreement Supplemental Appropriations Act, H.R. 5430, 116th Cong. Title IX (2020).

14. *Id.*

15. ENV’T PROT. AGENCY, *United States-Mexico-Canada Agreement (USMCA) Inv.*, <https://perma.cc/4J6F-27MP>.

16. Malone, *supra* note 8.

17. A ‘maquiladora’ is a manufacturing facility in Mexico that is owned by a foreign company. Through the IMMEX program (formerly the maquiladora program), foreign companies receive tax benefits when they import raw materials to Mexico, so long as companies export the finished goods to other countries within a government-mandated timeframe. See N. Am. Prod. Sharing, Inc., *A Comprehensive Guide to the IMMEX Program* (Aug. 8, 2022), <https://perma.cc/BQ27-ZKJR>; Lori Saldana, *Tijuana’s Toxic Waters*, NACRA REP. ON THE U.S.-MEX. BORDER (Nov. 1, 1999), <https://perma.cc/7Z3B-4Q5F>.

18. Saldana, *supra* note 17.

concentration of heavy metals on the Southern California Coast.¹⁹ The maquiladora industry garnered increased scrutiny for its role in transboundary water pollution in the 1990s.²⁰ That was the last time both countries worked collectively to upgrade the wastewater treatment infrastructure.²¹ In response, the Mexican government committed to increased regulation; however, due to NAFTA (now the USMCA), and supply chain disruptions during the COVID-19 pandemic, the maquiladora industry continues to burden the region's environmental capital.²²

This paper examines whether the EPA's Solution provides a long-term framework for resolving the wastewater pollution crisis at the U.S. – Mexico border by genuinely addressing its underlying causes. To evaluate any proposed solution, one must scrutinize the role that foreign-owned companies, governments, and binational free-trade agreements have in the unabated dumping of toxic wastes into the environment. As such, understanding the factors that contribute to the maquiladora industry's ever-growing presence in Tijuana reveals how current public governance strategies fail to protect human health and the environment along the Tijuana River Estuary.

Even if fully implemented, the EPA's Solution will not thoroughly resolve the wastewater crisis on its own. As a standalone remedy, the Solution will capture and treat polluted wastewater flows in the near-term, but it will not prevent increasing pollution in the long-term because it fails to target contributing factors. As such, this paper contends that any long-term, proactive attempts to solve the wastewater pollution crisis should include strategies to coerce electronics companies in Tijuana to comply with existing environmental regulations for maquiladoras.

As basis for that assertion, Part II of this paper explores the history of the maquiladora program in Mexico as well as the electronics industry's ever-growing presence in Tijuana. Part III examines the environmental toll of the maquiladora industry and its contributions to the wastewater pollution crisis. Part IV reviews the City of Imperial Beach's struggles with polluted transboundary flows, the City's lawsuit, and the federal government's

19. Daniel A. Weis et al., *Vertical Accretion Rates and Heavy Metal Chronologies in Wetland Sediments of the Tijuana Estuary*, 24(6) ESTUARIES 840, 840 (2001).

20. Saldana, *supra* note 17, at 33. "The plant's operators, under contract to the U.S. IBWC, believe these maquiladoras are at least partly related to the illegal discharge of industrial wastes from facilities in Tijuana. *Id.* "Maquiladoras for years have been unable to document that they are handling their hazardous waste in accordance with the law," notes one study. *Id.* "Some portion of the wastes they dispose of have simply disappeared within the city." *Id.*

21. See Michael Smolens, *Column: A Harsh Dose of Reality Amid Movement Toward Border Pollution Solution*, SAN DIEGO UNION TRIB. (Jan. 10, 2020), <https://perma.cc/6HSS-F9ME>.

22. See Per Stromberg, *The Mexican Maquila Industry and the Environment: An Overview of the Issues*, CEPAL-SERIE ESTUDIOS Y PERSPECTIVAS 26 (Dec. 2002), <https://perma.cc/YV6T-928X>.

response: the EPA's Solution. Part V evaluates the legal regimes that regulate pollution at the border and the maquiladora industry. Despite seemingly stringent environmental regulations in both countries and under binational treaties, the situation indicates the inability of regulatory bodies to effectively enforce those regulations. Part VI considers an alternative means of environmental enforcement to current public governance strategies. In doing so, this paper suggests that private environmental governance strategies, such as private certification and eco-labeling, would help to address the issue by demystifying the role of maquiladoras in the supply chain. So, perhaps with the high cost of the EPA's Solution, American consumers could be compelled to demand ethically and sustainably manufactured electronics from well-known companies that utilize maquiladora labor.

I. THE MAQUILADORA PROGRAM & MANUFACTURING IN TIJUANA TODAY

Unbeknownst to most American consumers, the border region supplies a considerable amount of the assembled electronics bought and sold in the United States. A recent study by University of San Diego, Knauss School of Business, found that the "CaliBaja" region is the largest "integrated economic zone along the border" with a gross domestic product of \$250 million.²³ Although the study indicated that there is an average of \$200 million in transnational trade every day, the majority of manufacturing occurs on the Mexican side.²⁴ The 2022 study also revealed that Baja California is the North American leader in manufacturing audio and video equipment, medical equipment, and semiconductors.²⁵ In fact, the region's employment in electronic equipment manufacturing is 500% higher than the regional averages for the rest of the United States and Mexico, with the vast majority of the labor force located in Baja California.²⁶ The study, however, underscored the need for improved infrastructure to sustain the region's ever-increasing electronics manufacturing.²⁷

The IMMEX program (better known as the maquiladora program), is an essential part of the CaliBaja region's dominance in electronics

23. The "CaliBaja" region includes two Southern California counties: San Diego and Imperial County, and six Mexican municipalities: Ensenada, Mexicali, Rosarito, San Quentin, Tecate, and Tijuana. Trigio Canedo Rivas, et al., *The CaliBaja Regional Economy*, AHLERS CTR. FOR INT'L BUS. 2 (2022), <https://perma.cc/42ZK-NXSK>.

24. *Id.* at 3.

25. Wendy Fry, *Report Finds Local California-Baja Regional Economy is the Largest Along U.S.-Mexico Border*, SAN DIEGO UNION TRIB. (Feb. 23, 2022, 2:29 pm), <https://perma.cc/X6QP-6QXW>.

26. Rivas, et al., *supra* note 23, at 3.

27. *Id.*

manufacturing.²⁸ Following President Lyndon B. Johnson's decision to end the Bracero Program in 1964, the Mexican government established the Border Industrialization Program (BIP) in 1965.²⁹ The purpose of BIP was to improve the job market in Northern Mexico by making the region more technologically and economically competitive.³⁰ With BIP, the Mexican government created the maquiladora program to encourage American, and now Asian, companies to relocate their assembly plants to Mexico for duty-free incentives, a low-cost labor force, and less regulatory oversight.³¹ Because the Mexican government designated the area a "free-trade zone," companies operating in the United States can send materials and supplies to Mexico for assembly without paying import duties.³² As a result of the program, between 1970 and 1988 there was a 1,000% increase in maquiladora employment as American companies sent raw goods over the border for assembly, and then back to the United States for consumption.³³ By 1987, trends indicated an increase in South Korean-based companies relocating assembly operations to Tijuana to take advantage of the same purported benefits as their American competitors.³⁴ Although the maquiladora program has evolved over the years, the fastest growing sector of maquiladora assembly plants continues to be in electronics.³⁵

Due to the maquiladoras, manufacturing decreased in southern San Diego and Imperial Counties as the region's workforces became more "knowledge-based."³⁶ Many foreign-based companies operate "twin-plants" where marketing and quality control are conducted on the U.S. side of the border, and assembly is carried out in Tijuana.³⁷ The City of San Diego lauds the "twin-plant" structure for the revenue it provides the city, citing companies with administrative facilities in San Diego and maquiladoras in Tijuana, including Panasonic, Samsung, Hyundai, and Honeywell.³⁸ The city further contends that the structure is convenient for companies, as their website explains, "maquiladoras allow for one plant to perform labor intensive processes and another plant to perform capital

28. Peter Smith, *The Watershed Economy: Legal Challenges Facing the Tijuana River*, 11 UNIV. OF DENVER L.R. 337, 349 (2007), <https://perma.cc/M9KW-L8LA>.

29. *Id.*

30. ENV'T PROT. AGENCY, Elyse Bolterstein, *Environmental Justice Case Study: Maquiladora Workers and Border Issues* (1999), <https://perma.cc/H2D9-L2C6>.

31. Malone, *supra* note 8.

32. City of San Diego, *Maquiladoras/Twin Plants*, <https://perma.cc/P6JF-6DC3> (last visited Oct. 29, 2022).

33. Smith, *supra* note 28, at 350.

34. David M. Kinchen, *Twin Border Plants Spur San Diego's Economy*, L.A. TIMES (May 31, 1987), <https://perma.cc/6C53-LHFP>.

35. Smith, *supra* note 28, at 350.

36. *Id.*

37. Kinchen, *supra* note 34.

38. City of San Diego, *supra* note 32.

intensive processes.”³⁹ This structure ultimately enables companies to take advantage of tax incentives available only to companies operating in the United States, while paying little for labor or capital improvements in Mexico. As one article explained “this ‘knowledge-economy’ essentially runs on the electronic components assembled in the maquiladoras south of the border.”⁴⁰ Overall, local governments, focused on profit, advertise the rapid shift towards a concentrated manufacturing economy south of the border as a benefit, while it is entirely dependent on exploiting Mexican labor and environmental capital.

Similarly, manufacturing continues to decline in China as well, while the industry expands in Mexico.⁴¹ Several Mexican companies advertise specifically for Asian companies to relocate their assembly operations to Tijuana, emphasizing the city’s strategic location for easy access to the coveted American consumer market.⁴² For example, North American Production Sharing, Inc. (NAPS) is just one of several companies providing administrative services to help foreign companies navigate the maquiladora program.⁴³ NAPS boasts that, due to the manufacturing industry, 80,000 new residents move to Tijuana each year, coming to work in the 600 maquiladora plants.⁴⁴ Another company, Tijuana Economic Development Corporation (Tijuana EDC), created a website tailored to Chinese investors for electronics assembly, noting that of the 600 maquiladora plants, 120 are devoted to electronics.⁴⁵ Tijuana EDC also contends that the city’s location offers companies a competitive edge.⁴⁶

Due to COVID-19-related supply chain disruptions, Tijuana’s proximity to the U.S. caused a massive resurgence in maquiladora operations. According to a January 2022 article, “Tijuana’s maquiladora industry is in the midst of a new roaring ‘20s.”⁴⁷ The study conducted by University of San Diego on the CaliBaja region revealed that while other industries suffered extensive job loss and unemployment during the pandemic,

39. Id.

40. Smith, *supra* note 28, at 350.

41. N. Am. Prod. Sharing, Inc., *Manufacturing in Tijuana*, <https://perma.cc/U36P-P4H3> (last visited Oct. 29, 2022).

42. See *What is the Cali Baja Mega Region? Cooperation for Business*, TIJUANA ECON. DEV. CORP. (June 4, 2020), <https://perma.cc/3BQJ-5SCB>.

43. N. AM. PROD. SHARING, INC., *Mexico Manufacturing Specialists*, <https://perma.cc/3EUP-U3N4> (last visited Oct. 26, 2022).

44. N. Am. Prod. Sharing, Inc., *supra* note 41.

45. *Tijuana City and It’s Electronics Industry, A Well Developed Manufacturing Environment with Years in the Making*, INVEST IN TIJUANA (Sept. 11, 2019), <https://perma.cc/NH2L-PJNJ>.

46. Id.

47. Gustvao Solis, *Resurgent Maquiladoras Are Making Tijuana a Boom Town All Over Again*, KPBS (Jan. 5, 2022), <https://perma.cc/9CPX-MBFU>.

manufacturing in the CaliBaja region was minimally affected.⁴⁸ As testament to the industry's resilience, in January 2022 there were reportedly 270,000 maquiladora employees in Tijuana – an “all-time high.”⁴⁹

While this level of growth is reminiscent of the early NAFTA-era, it is attributed to section 321 of the Tariff Code and America's growing demand for fulfillment centers to complete online purchases.⁵⁰ Section 321 sets a “de minimis threshold,” so that imports under \$800 that are shipped directly to customers are not subject to tax or duty.⁵¹ After the Obama Administration increased the “de minimis threshold” from \$200 to \$800 in 2016, demand for industrial real estate in Tijuana to build fulfillment centers increased dramatically.⁵² During the pandemic, however, demand for industrial space has compounded by the cargo ship backlog and America's worker shortages.⁵³ Despite the sudden influx economic activity in the region, a local industrial developer, Adriana Eguia, offered a warning for those involved. According to Eguia, “what needs to happen now is a lot of will from governments and businesspeople to invest in infrastructure of the cities. Because if we keep on growing and there are no more roads or security or lighting and everything the city needs for growth, it's probably going to collapse.”⁵⁴ So, although consumers shifted to online purchasing during the pandemic, it is apparent that local governments and companies need to respond to pressures placed upon the region's resources and infrastructure.

II. THE HUMAN & ENVIRONMENTAL TOLL OF THE MAQUILADORA INDUSTRY

By failing to invest in local infrastructure or develop on-site wastewater treatment facilities at their maquiladora plants, foreign companies overwhelm Tijuana's already overburdened infrastructure. So, absent essential infrastructure to support both maquiladoras and residents, Tijuana's residents and environment continue to endure worsening pollution.

Although factory jobs offer hope of economic prosperity, the reality is that workers coming to Tijuana compete for resources and space against the very maquiladoras where they work. For instance, workers unable to find or afford housing must reside in squatter settlements on the outskirts

48. Rivas, et al., *supra* note 23, at 3. The 2022 Study shows that “Arts, Entertainment, and Recreation” suffered a 51.7% job loss, but job losses were much lower for manufacturing at -7%. *Id.*

49. Solis, *supra* note 47.

50. *Id.*

51. *Section 321 Programs*, U.S. CUSTOMS AND BORDER PROT. (Oct. 3, 2019), <https://perma.cc/AL5V-MRVY>.

52. Solis, *supra* note 47.

53. *Id.*

54. *Id.*

of existing neighborhoods.⁵⁵ These squatter settlements, as well as many other neighborhoods, lack access to utilities, so residents pay to have potable water delivered.⁵⁶ Meanwhile, companies like Samsung require high-quality water for their operations and receive priority water delivery from the nearby potable water treatment plant.⁵⁷ However, the pressure that maquiladora plants place on Tijuana's ability to provide clean water for its residents extends beyond Samsung.⁵⁸ According to a San Diego-based non-profit, Environmental Health Coalition (EHC), new factories can require nearly one million gallons of water per day.⁵⁹

The maquiladoras not only dominate Tijuana's water supplies, but they also exacerbate regional water pollution. According to former Tijuana mayor Guadalupe Osuna Milán, "the maquiladora industry is the most important source of water pollution."⁶⁰ The electronics sector poses the greatest risk to water quality and is considered the most water intensive of the sectors.⁶¹ For instance, in manufacturing computer monitors, factories produce extremely dangerous by-products, including chromium and solvents.⁶² Because many factories refuse to build on-site treatment facilities, high levels of heavy metals pollute Tijuana's wastewater system, and eventually, the Tijuana River Estuary.⁶³

The heavy metals found in the Tijuana River Estuary indicate that many maquiladora owners also fail to comply with requirements for hazardous waste disposal, in addition to wastewater treatment. Under the La Paz Agreement, any hazardous waste generated by maquiladoras must be repatriated to the maquiladora's "country of origin, which is wherever the maquiladora's parent company is located."⁶⁴ So, for the majority of maquiladoras, which are American owned, hazardous waste generated during manufacture processes that rely on duty-free imports must be returned to the United States.⁶⁵ Unfortunately, in 2019, the EPA discovered that

55. Saldana, *supra* note 17.

56. *Id.*

57. *Id.*

58. *Id.*

59. *Id.*

60. *Id.*

61. Stromberg, *supra* note 22, at 40.

62. Saldana, *supra* note 17.

63. *Id.*

64. La Paz Agreement, Mex.-U.S., Annex III, Aug. 14, 1983, 80 Stat. 271; the La Paz Agreement contains environmental regulatory requirements for maquiladoras to abide by. NAFTA, and now the USMCA, both rely on the La Paz Agreement for disposition of maquiladora-generated hazardous waste. *See infra* Part V, Section A1.

65. Slocum, *Rethinking Hazardous Waste Under NAFTA*, AMERICAS PROGRAM (Feb. 7, 2009), <https://perma.cc/5935-62V7>. According to a 2007 study, fifty-five percent of maquiladoras surveyed were American owned. *See* Claudia Schatan & Liliana Castilleja, *The Maquiladora Electronics Industry on Mexico's Northern Border and the Environment*, 7 INT'L ENV'T AGREEMENTS, 109, 122 (2007).

maquiladoras rarely return their hazardous waste to American parent companies.⁶⁶ Because properly disposing of hazardous waste in the U.S. is costly, companies have incentive to maximize their profits by illegally dumping waste in Mexico. One study cautioned that the low level of compliance with the La Paz Agreement's Repatriation Rule may eventually contribute to an inevitable toxic waste crisis in Mexico.⁶⁷

Regardless of how maquiladora-generated pollutants enter the environment, the reality is that heavy metals associated with the manufacture process contaminate the local soil, water, and air.⁶⁸ By contaminating the local environment, humans living and working in the region suffer health impacts as well. The Metales y Derivados case continues to be the most infamous example of human tragedy resulting from an American-owned maquiladora's noncompliance with environmental regulations.⁶⁹ Although the case chronicles an extreme example of lead exposure within an entire community, maquiladora workers still expose themselves to dangerous working conditions and toxic chemicals daily. Those very same chemicals enter the environment, exposing workers, residents, and families at their homes. In addition to maquiladora workers and nearby residents, Americans working for the U.S. Border Patrol and Navy reportedly suffer illness and chemical burns after coming into contact with the water or working in the vicinity.⁷⁰

A. THE MAQUILADORA INDUSTRY AND THE BORDER WATER POLLUTION CRISIS

While it is known that the maquiladoras in Tijuana contribute to some of the pollution, recent water quality studies confirmed the presence of heavy metals and industrial chemicals associated with manufacturing in the environment.⁷¹ Following an investigation into the February 2017 wastewater spill that impacted Imperial Beach and southern San Diego County, the IBWC conducted a sampling study of water and sediment in the Tijuana River Valley.⁷² The 2019 study detected concentrations of phosphorous (a product banned in the United States that is used in

66. 'Maquiladora' Pollution U.S. Problem, TULSA WORLD (Aug. 21, 1990), <https://perma.cc/NHP8-6LQR>.

67. Slocum, *supra* note 65.

68. Brandon McDowra, *The Story of the Maquiladora. Pollution, Corruption, and Destruction*, (Dec. 9, 2020), <https://perma.cc/G5XE-JFYP>.

69. *See infra* Part V, Section A 2a.

70. Joshua Emerson Smith, *Border Patrol Agents Said Tijuana Sewage Problem Worse Now Than in Previous Decades*, THE SAN DIEGO UNION TRIB. (May 26, 2017), perma.cc/H5KL-KAU6.

71. *See supra* note 20; INT'L BOUNDARY WATER COMM'N U. S. AND MEX., *Binational Water Quality Study of the Tijuana River and Adjacent Canyons and Drains* (Aug. 2020).

72. Int'l Boundary Water Comm'n U. S. and Mex., *supra* note 71, at 7.

manufacturing soaps and solvents) and DEHP (a chemical added to plastic) at levels dangerous to human health and the environment.⁷³ The study also discovered that the estuary contained fecal coliforms and ammonia (associated with raw sewage), as well as nickel, copper, and zinc at levels indicative of untreated wastewater.⁷⁴

Although the recent IBWC study confirms the maquiladora industry's contribution to the wastewater pollution crisis, it is critically important to view the crisis as a side effect of unfettered capitalism. Whether attributed to imperialism, racism, or capitalism – the free-trade regimes facilitating maquiladoras treat Mexican border communities as sacrifice zones in pursuit of market expansion. Regardless of the hundreds of millions of dollars spent by American taxpayers on upgraded wastewater treatment facilities every few decades, the American economy continues to profit from the maquiladora program.

Kevan Q. Malone suggests that “rather than seeing this simply as a case of Mexico polluting the United States, we must understand that southbound capital flows and northbound sewage flows are two parts of the same story.”⁷⁵ Perhaps, the wastewater pollution problem should instead be viewed as a case of foreign and U.S.-owned companies contributing to transboundary flows polluting the United States. Further, the crisis should be regarded as the result of corporations choosing profit over people, exploiting the Mexican labor force, and evading environmental regulation.

III. LEGAL RESPONSE TO U.S. IMPACTS

The last time the region witnessed the current level of collective action and bi-national political will to address border sewage occurred in the 1990s, which resulted in the construction of the South Bay International Wastewater Treatment Plant.⁷⁶ At the time, a cross-border coalition of groups worked together to construct a system of projects designed to capture any spills, including the South Bay Plant.⁷⁷ Unfortunately, the IBWC did not receive enough funding to complete the South Bay Plant as originally planned. While the plant does not have the initially proposed treatment capacity, the plant never met the secondary treatment standards required by the federal CWA either.⁷⁸ By late 2010, due in part to local political advocacy and lawsuits, the IBWC initiated plans to upgrade the

73. *Id.*

74. *Id.* at 38–43.

75. Malone, *supra* note 8.

76. Smolens, *supra* note 21.

77. *Id.*

78. Mike Lee, *Border Sewage Plant Nears Completion*, SURFRIDER FOUND. SAN DIEGO CNTY. (Dec. 3, 2010), <https://perma.cc/RG3G-R5P9>.

plant.⁷⁹ Unfortunately, however, upgrades to the South Bay Plant did not finish until 2018.⁸⁰

In the meantime, beach shutdowns and reports of sick surfers became commonplace for South Bay residents.⁸¹ Because the region is downhill from Tijuana, the South Bay is particularly affected by the untreated wastewater flows during winter storms. The region is also impacted by wastewater discharged into the Pacific Ocean from Tijuana's Punta Bandera treatment plant and carried northward by summer currents, which also regularly shuts southern San Diego County beaches.⁸² The San Diego Department of Environmental Health cited wastewater flows from the Tijuana River as the largest contributor to beach closures in the county.⁸³ As a testament to the prevalence of the issue, in late 2021, Imperial Beach Mayor Serge Dedina lamented that the city had to close its beaches for 218 days that year due to water pollution coming from Mexico.⁸⁴

The constant barrage of wastewater flows impacting the South Bay compounded following the February 2017 spill. Considered the one of the largest spills to occur in the region, it lasted for two weeks and impacted beaches from Rosarito, Mexico, all the way to Coronado, California.⁸⁵ Local governments requested information from the U.S. IBWC about a potential spill in early February, but the IBWC did not confirm the 143-million-gallon spill until February 23, 2017.⁸⁶ The U.S. IBWC later notified U.S. stakeholders that it would launch a formal investigation to determine the cause and potential preventative measures against future spills.⁸⁷

Dissatisfied with the federal government's response to the spill, local governments scrutinized the IBWC's role in addressing transborder water pollution.⁸⁸ Ultimately, the federal government's inaction during and after the February 2017 spill spurred the lawsuit filed by the City of Imperial

79. *Id.*

80. Press Release, U.S. Int'l Boundary Water Comm'n, USIBWC Completes \$18 Million Expansion Project at South Bay International Wastewater Treatment Plant, (Aug. 3, 2018).

81. Smolens, *supra* note 21.

82. Env't Protection Agency, *supra* note 7.

83. According to the Surfrider Foundation, "From 2007 to 2013, beaches across San Diego County were closed an average of 212 days out of the year, the majority of which were due to elevated levels of fecal indicator bacteria (FIB)." Scott Ridout, *Tijuana River: The Largest Spill We've Ever Seen*, SURFRIDER FOUND. (Mar. 2, 2017), <https://www.surfrider.org/coastal-blog/entry/tijuana-river-the-largest-sewage-spill-weve-ever-seen>.

84. Joshua Emerson Smith, *EPA Outlines \$630M Vision for Curbing Tijuana Sewage in San Diego*, SAN DIEGO UNION TRIB. (Nov. 8, 2021), <https://perma.cc/9HLJ-35JX>.

85. Ridout, *supra* note 83.

86. Erik Anderson, *Federal Response to Cross-Border Sewage Spill Questioned*, KPBS (Feb. 28, 2017), <https://perma.cc/H8NM-E83V>.

87. Int'l Boundary Water Comm'n PowerPoint presentation, Tijuana River Wastewater Spill Investigation, (Feb. 2017).

88. Int'l Boundary Water Comm'n, *supra* note 71, at 7.

Beach in March 2018. Joined by the State of California and nearby city governments, the City of Imperial Beach alleged that the U.S. IBWC violated the CWA and the Resource Conservation and Recovery Act by failing to prevent untreated renegade flows into the Tijuana River.⁸⁹ The IBWC filed a motion to dismiss the lawsuit, claiming that it is not responsible for the renegade flows, but the court declined to dismiss the lawsuit.⁹⁰ However, because of federal commitments made in the USMCA litigation to address border water quality, the City of Imperial Beach agreed to a twelve month stay on litigation.⁹¹

A. FEDERAL GOVERNMENT RESPONSE: THE EPA'S COMPREHENSIVE INFRASTRUCTURE SOLUTION

Due to relentless political lobbying, several lawsuits, and advocacy efforts, officials at the federal, state, and local levels secured \$300 million to address the border sewage issue. In negotiating a replacement for NAFTA, politicians ensured that the USMCA included funding to address polluted transboundary flows at the Tijuana border.

Specifically, section 821 of the USMCA implementing legislation designates the EPA as the lead agency for coordinating with community partners to identify and construct “high priority wastewater facilities on the U.S. – Mexico border.”⁹² The legislation tasks the EPA with project facilitation because the agency reportedly “possesses the issue expertise and experience necessary to lead and coordinate all efforts associated with pollution reduction in the Tijuana River’s Watershed.”⁹³ Local politicians contend that the USMCA offers hope for a solution to the decades-long border sewage problem because binational efforts can now be coordinated with the EPA as the designated lead instrumentality.⁹⁴

Whether it is indicative of the strength of the City of Imperial Beach’s federal CWA lawsuit or due to renewed federal interest, local officials agree that the federal government appears committed to an immediate and holistic solution.⁹⁵ A representative for the local Surfrider Foundation testified to the hands-on approach taken by the EPA upon initiating bi-national stakeholder engagement in the summer of 2020.⁹⁶ Through various meetings, the EPA worked with community partners to evaluate various suites

89. City of Imperial Beach *supra* note 10, at 1010–11 (S.D. Cal. 2018).

90. Salvador Rivera, *California City Drops ‘Sewage’ Lawsuit Against Federal Government*, (July 9, 2020), <https://perma.cc/7YN8-5CXR>.

91. *Id.*

92. ENV’T PROT. AGENCY, *Tijuana River Watershed Provisions in United-States-Mexico-Canada Agreement (USMCA)*, <https://perma.cc/2BWY-MRE8>.

93. *Id.*

94. ENV’T PROT. AGENCY, *supra* note 7.

95. Smolens, *supra* note 21.

96. Interview with Trisha Mejia, (Jan. 29, 2022).

of infrastructure projects to best mitigate polluted transboundary flows.⁹⁷ To further assess the efficacy of proposed infrastructure solutions, the EPA worked with the Scripps Institute of Oceanography to conduct a Beach Impact Comparison Study.⁹⁸ The study confirmed the necessity of reducing untreated wastewater flows from the Tijuana River, finding that wastewater flows cause two-thirds of all annual beach closures.⁹⁹

In the Fall of 2021, after conducting bi-national stakeholder engagement, the EPA and local stakeholders agreed to a suite of projects: the Comprehensive Infrastructure Solution. Comprised of multiple projects along the border, the Solution aims to reduce or entirely limit wastewater flows from various discharge points, including the Tijuana River.¹⁰⁰ According to a representative for the Surfrider Foundation, although the Solution is the most expensive option, it provides a comprehensive and holistic approach to reducing transboundary flows.¹⁰¹

While the Solution will drastically reduce wastewater flows until 2050, the biggest issue is how to fund it.¹⁰² Congress only appropriated 300 million dollars to the EPA, but the entire build out costs 627 million dollars. In addition to construction costs, the EPA projects that operational and maintenance costs will reach 26 million dollars annually. Although the solution exceeds the amount appropriated to the EPA by Congress, agencies and politicians suggested other supplementary funding options. California senators proposed the Border Water Quality Restoration and Protection Act to fully fund and codify the program, while keeping the EPA in charge of managing water quality in the region. The EPA also suggested implementing the solution in phases as more funding becomes available. So, while the Solution is necessary and provides hope for a near-term abatement of polluted transboundary flows, fully funding the program remains uncertain.

IV. PRIVATE ENVIRONMENTAL GOVERNANCE AS PART OF THE SOLUTION

Both the U.S. and Mexican governments encourage foreign investments in maquiladoras, but the legal structures in place for regulating maquiladoras fail to prevent environmental degradation. The Mexican government has a history of an inability to adequately ensure regulatory compliance at factories, while bilateral treaties and environmental provisions

97. ENV'T PROT. AGENCY, *supra* note 15.

98. ENV'T PROT. AGENCY, *Beach Impact Comparison Study*, <https://perma.cc/P4C9-52QE>.

99. Falk Feddersen et al., *Modeling Impacts of Various Wastewater and Stormwater Flow Scenarios on San Diego South Bay and Tijuana Beaches*, N. AM. DEV. BANK (Nov. 2020) <https://perma.cc/QBA4-SKXX>.

100. ENV'T PROT. AGENCY, *supra* note 15.

101. Interview with Trisha Mejia, *supra* note 96.

102. ENV'T PROT. AGENCY, *supra* note 15.

under NAFTA (now the USMCA), fail to compel companies to properly treat and dispose of toxic, industrial waste.

Instead, private environmental governance strategies can help to address the U.S. and Mexican governments' inability to successfully respond to the water pollution issue at the Tijuana border. While the EPA's Solution is necessary, it merely reacts to the problem, rather than proactively resolving its cause. In actuality, the problem is the result of exploitative consumerism and free-trade agreements that encourage companies and local governments to prioritize profit over people and the environment, while worsening economic inequality and endangering public health. While it is uncertain whether Americans will collectively reckon with the genuine cause of the wastewater issue, private environmental governance strategies offer a potential strategy for amelioration. As such, through private environmental governance, American consumers should pressure companies to change their practices through labeling certifications and large-scale private ordering.

A. CURRENT LEGAL REGIMES AND PUBLIC GOVERNANCE FAILURES

The 1944 Treaty first codified U.S. – Mexico relations regarding transboundary sewage flows. Under the 1944 Treaty “Utilization of Waters of the Colorado and Tijuana Rivers and of the Rio Grande,” the International Boundary Commission of 1889 became the IBWC.¹⁰³ While the treaty primarily regulates transnational exchange of water, the treaty tasked the IBWC with ensuring that the United States and Mexico sections of the IBWC prioritize water sanitation issues.¹⁰⁴

Although provisions of the Treaty of 1944 give the impression that the IBWC will respond to and address water quality issues at the border, in reality, the IBWC's role is less clear. For example, municipalities in the region expressed their belief that the federal government, via the IBWC, should be in charge of monitoring water quality in the Tijuana River.¹⁰⁵ The IBWC denied this, claiming that the Treaty of 1944 does not give it the authority or funding to do so.¹⁰⁶ Similarly, in its response to the City of Imperial Beach's allegations in its recent lawsuit, the IBWC also claimed that monitoring point source pollution and complying with the CWA would violate the Treaty of 1944.¹⁰⁷ Although the Court rejected this argument, it is clear that the IBWC is either limited in its willingness to appropriately

103. INT'L BOUNDARY WATER COMM'N, The International Boundary Water Commission - Its Mission, Organization and Procedures for Solution of Boundary and Water Problems, <https://perma.cc/E3Q9-KCFU> (last visited Oct. 29, 2022).

104. CUSTOMS AND BORDER PROT., *supra* note 51.

105. MacKenzie Elmer, *New Snapshot of What's in the Tijuana River is as Gross as You'd Expect*, VOICE OF SAN DIEGO (Nov. 2, 2020), <https://perma.cc/Y4ZS-MU88>.

106. *Id.*

107. City of Imperial Beach, *supra* note 10, at 1011.

respond to the issue or is genuinely constrained by the Treaty's terms. Even so, the 1944 Treaty still dictates U.S. – Mexico relations on border water quality, however the emergence of the maquiladora program and subsequent free-trade agreements complicate the regulatory landscape.

i. NAFTA and the La Paz Repatriation Rule

With the advent of the original maquiladora program in 1965, foreign companies were required to return all hazardous waste to the country of origin under the government's "Repatriation Rule."¹⁰⁸ To receive tariff incentives, any hazardous waste generated during manufacturing processes "must be repatriated back to the maquiladora's country of origin" or "recycled domestically at approved facilities."¹⁰⁹ So, because the majority of maquiladoras are owned by U.S.-based companies, hazardous waste should be repatriated back to the U.S.

Unfortunately, only a small minority of companies comply with the Repatriation Rule. A 2007 report found that less than one-fifth of hazardous waste generated by United States-owned maquiladoras was returned, while an earlier study revealed that before 1994, less than three percent returned waste to the U.S.¹¹⁰ Admittedly, however, returning hazardous waste back to the maquiladora's country of origin is both a daunting and costly task. So most companies have an incentive to not comply with the Repatriation Rule.

Also, although the Repatriation Rule allows for hazardous waste to be recycled in Mexico, there are only a few "domestically approved facilities."¹¹¹ So, because the country does not have the ability to process hazardous waste left in-country by maquiladora plants, most of it is dumped illegally. To compound the issue, although maquiladoras were regulated under NAFTA since the 1990s, the treaty does not address toxic waste generation. Instead, NAFTA relies on Annex III of the 1983 La Paz Agreement (the Repatriation Rule).

ii. NAFTA & the North American Agreement on Environmental Cooperation

In 1994, the United States government promised that NAFTA would benefit Mexico's economy with "export-led growth."¹¹² In addition to NAFTA, its environmental protection-focused side-treaty, the North

108. Slocum, *supra* note 65.

109. *Id.*

110. *Id.*; Despite NAFTA's Green Promises, Hazardous Waste Problems are Deepening in Mexico, INST. FOR AGRIC. & TRADE POL'Y (May 10, 2002), <https://perma.cc/5G4C-CND5>.

111. *Id.*

112. Robert Blecker, *NAFTA and the Peso Collapse*, ECON. POL'Y INST. (Mar. 1, 1997), <https://perma.cc/HW2U-FBEM>.

American Agreement on Environmental Cooperation (NAAEC), purported to improve Mexico's ability to minimize the environmental impacts associated with trade liberalization and rapid industrialization.¹¹³ In developing the NAAEC, a 1991 report by the U.S. Government Accountability Office (GAO) determined that neither the U.S. or Mexico knew how many maquiladoras were generating hazardous waste, how much, and "the final disposition of such waste."¹¹⁴ Based on its findings, GAO recommended obtaining data on maquiladora-generated waste to successfully address pollution at the border.¹¹⁵ As such, a key element of the NAAEC was to create a mechanism for the Mexican government to track and treat waste.¹¹⁶ Overall, the NAAEC sought to discourage toxic waste dumping in Mexico and prevent further environmental degradation resulting from the maquiladora program.

Unfortunately, despite its environmental provisions, NAFTA had the opposite effect on the Mexican economy and environment. Critics of NAFTA castigate the agreement for the unenforceability of its environmental and labor provisions.¹¹⁷ Although reported figures vary, there were 1,704 maquiladoras in 1990, and within the first five to ten years of NAFTA, maquiladoras in the region nearly tripled.¹¹⁸ Along with the rapid expansion of maquiladoras within those first five years, Mexico's annual hazardous waste generation doubled to eight million tons.¹¹⁹ And while NAFTA created jobs for Mexican workers by increasing trade with the United States, the Mexican government had to devalue the peso to attract foreign companies to invest there. By devaluing the peso, Mexico was able to offer companies a competitive advantage with cheaper labor costs. Ultimately, thousands of Mexicans flocked to Tijuana to earn meager wages that fail to support a family's necessities or provide adequate housing with access to utilities. Much of the housing that maquiladora workers reside in is often located near industrial parks populated with hundreds of factories. For example, the EHC revealed that the Tijuana neighborhood, Colonia Chilpancingo, is near an industrial park with some of the most toxic generating maquiladoras, including "electronics, wood, plastics, and metals."¹²⁰ Unfortunately, to purportedly stimulate the Mexican economy, NAFTA

113. Slocum, *supra* note 65.

114. U.S. GOV'T ACCOUNTABILITY OFFICE, *Hazardous Waste: U.S. and Mexican Management of Hazardous Waste from Maquiladoras Hampered by Lack of Information*, (Nov. 21, 1991), <https://perma.cc/69XW-KQA9>.

115. *Id.*

116. ENV'T PROT. AGENCY, *supra* note 15.

117. Amelia Simpson, *Warren County's Legacy for Mexico's Border Maquiladoras* 1 GOLDEN GATE UNIV. ENV'T L.J. 153, 166 (Jan. 2007).

118. Despite NAFTA's Green Promises, Hazardous Waste Problems are Deepening in Mexico, *supra* note 110.

119. Slocum, *supra* note 65.

120. Simpson, *supra* note 117, at 167.

arguably increased poverty conditions along the border while generating more hazardous waste.

Many scholars and reporters continue to observe how NAFTA transformed the border region into a maquiladora “pollution haven” and an overall environmental justice disaster.¹²¹ While some researchers report that foreign-owned companies pollute less than their Mexican-owned counterparts, Lori Wallach with Public Citizen’s Global Trade Watch argues that lower wages under NAFTA are the greatest impetus for companies to outsource manufacturing to the border region.¹²² However, not only do lower wages entice outsourcing, there is also the prospect of minimal environmental enforcement. As a result, according to Wallach, companies “go to Mexico knowing they can basically exploit the environment, exploit people and avoid those costs.”¹²³ In particular, because it was assumed that Mexico would invest in the border region’s oft-nonexistent infrastructure, NAFTA does not require factory owners to invest in the local infrastructure that would ultimately temper the damaging effects of manufacture.¹²⁴ Rather, companies drain the border region of its environmental capital, pollute, and encounter minimal environmental enforcement from Mexican regulators.

iii. Metales y Derivados Case

An infamous example of NAFTA’s contribution to the rise in maquiladora-generated toxic pollution is the Metales y Derivados (Metales) case. Owned by the San Diego-based wholesale metals supplier, New Frontier Trading Corporation, Metales operated as a lead smelter in Eastern Tijuana.¹²⁵ Metales began importing discarded batteries and lead scrap from the United States under the maquiladora regime in 1972, before moving to Otay de Mesa, adjacent to the residential community of Colonia Chilpancingo, in 1986.¹²⁶ After complaints from the community about dangerous waste disposal practices and cases of children with lead poisoning, Profepa began its investigation of the facility in 1989.¹²⁷ Throughout the course of its investigation, Profepa cited the facility for its persistent failure to properly dispose of hazardous waste and treat wastewater.¹²⁸ Profepa also

121. Ian James & Zoe Meyers, *This Mexican City Was Transformed by Factories. Its People Pay a Heavy Price*, DESERT SUN (Dec. 5, 2018), <https://perma.cc/3RQR-TQ6B>.

122. *Id.*

123. *Id.*

124. Louis Uchitelle, *Nafta Should Have Stopped Illegal Immigration, Right?*, N.Y. TIMES (Feb. 18, 2007), <https://perma.cc/V9DS-67QZ>.

125. Saldana, *supra* note 17.

126. Simpson, *supra* note 117, at 161–62.

127. Profepa is the law enforcement division of SEMARNAT, Mexico’s environmental protection agency. Simpson, *supra* note 117, at 162.

128. *Id.*

ordered Metales to comply with the requirement to send hazardous waste back to the United States under the Repatriation Rule.¹²⁹ Metales, however, continued to haphazardly dump toxic waste at the site, and was ordered to shut down in 1994.¹³⁰ The owner, José Kahn, fled to San Diego, California to avoid prosecution for “gross environmental pollution,” abandoning nearly 8,500 tons of lead sludge exposed at the site.¹³¹

For years after José Kahn abandoned the Metales site, maquiladora workers living in Colonia Chilpancingo walked past lead waste on their way to work in factories at Otay de Mesa industrial park.¹³² While workers were exposed as they traveled near the factory, lead dust and toxic runoff regularly blanketed their neighboring residences and contaminated streams.¹³³ By 2003, reports circulated about stereo assembly workers living in the Colonia giving birth to stillborn infants, and children with anencephaly or other fatal birth defects.¹³⁴ Residents constantly exposed to toxins at work and at home suffered health issues consistent with lead poisoning, such as hair loss, nose bleeds, and tumors. At the time, Mexican health officials reported that anencephaly and hydrocephaly occur at an “abnormally high rate” among residents of Colonia Chilpancingo compared to national averages.

With all the reports of lead exposure and subsequent health impacts, residents and nonprofits utilized the mechanisms established by NAFTA for addressing environmental violations. The EHC’s Border Environmental Justice Campaign supported community members by forming the Colectivo Chilpancingo Pro Justicia Ambiental (Colectivo). Together, the groups filed a petition with the Commission for Environmental Cooperation of North America (CEC) in 1998.¹³⁵ Under the NAAEC, nongovernmental organizations (NGO) and citizens can petition the CEC, alleging that a party to the NAAEC is “failing to effectively enforce its environmental law.”¹³⁶ As such, EHC and Colectivo claimed that Mexico did not enforce provisions of its environmental law to prevent and clean up the hazardous waste generated and abandoned at the Metales site.¹³⁷ The CEC voted in favor of developing a factual record which ultimately conceded that the border enables foreign-owned companies to habitually abandon

129. *Id.* at 163.

130. *Id.*

131. Kevin Sullivan, *A Toxic Legacy on the Mexican Border*, WASH. POST (Feb. 16, 2003), <https://perma.cc/87S6-4G3N>.

132. Simpson, *supra* note 117, at 163.

133. *Id.* at 164.

134. Sullivan, *supra* note 131.

135. *Id.* at 168 – 169. Under the NAAEC, the CEC was created to fulfill NAFTA’s environmental protection provisions.

136. Secretariat for the Comm’n for Env’t Coop, *N. Am. Agreement on Env’t Coop/15* (1993); Simpson, *supra* note 117, at 168.

137. Simpson, *supra* note 117, at 168.

maquiladoras to evade enforcement of Mexican law.¹³⁸ Despite the favorable report, neither NAFTA nor the NAAEC empower the CEC to enforce, implement, or act on any of its findings. The formal citizen complaint process merely provided the community with a report to validate what they already knew, but no way to compel any party to clean up the Metales site. It took years of dedicated advocacy work from EHC to successfully pressure the Mexican government to commit to cleaning up the Metales site in 2004.¹³⁹

The Metales case is an example of how the legal regimes ostensibly created to minimize environmental harm ultimately fail communities living along the border that bear the cost of free trade. Despite NAAEC's purported environmental protections, NAFTA's environmental-side treaty is merely a "paper tiger." Unfortunately, Metales is but one example of a common scenario when a foreign company takes advantage of cheap labor, tax incentives, and lax environmental regulation, only to avoid investing in the local infrastructure that their factories require. According to a 2003 article documenting the Metales case, both U.S. EPA and Secretaría de Medio Ambiente y Recursos Naturales (SEMARNAT) officials contend that the Eastern Tijuana region is a prime example of where international companies pollute the environment.¹⁴⁰ Overall, the Metales case highlights how a Colonia of 10,000 mostly maquiladora workers were directly impacted by the regime, while only NGOs could eventually enforce environmental protections.¹⁴¹

iv. Environmental Provisions in the USMCA Compared to NAFTA

Beyond the \$300 million appropriation to the Border Water Infrastructure Improvement Authority under section 821, the USMCA's environmental protection provisions echo that of NAFTA and the NAAEC.¹⁴² Section 821 designates the EPA as the lead agency to coordinate the planning and construction of wastewater treatment facilities along the Tijuana River Valley with "eligible public entities."¹⁴³ Aside from providing a reactive solution to the border sewage issue, however, the USMCA does not substantively enhance environmental provisions pertaining to maquiladoras.

Although former President Trump's anti-NAFTA rhetoric took the spotlight during USMCA negotiations, the Mexican government also garnered criticism from Democratic congresspeople. Both parties accused Mexico of condoning a regulatory chill of environmental and labor

138. *Id.*

139. *Id.* at 169.

140. Sullivan, *supra* note 131.

141. *Id.*; Saldana, *supra* note 17.

142. 19 U.S.C.A. §§ 4713 – 4715; ENV'T PROT. AGENCY, *supra* note 92.

143. ENV'T PROT. AGENCY, *supra* note 92.

standards to attract more foreign investment under NAFTA.¹⁴⁴ However, despite what appeared to be a bipartisan American effort to hopefully recognize factors contributing to Mexico's alleged de-regulation, the new agreement remained largely unchanged.

For example, although NAFTA's proponents lauded it as the first free trade agreement to include environmental provisions, the Metales case demonstrated how those provisions were effectively useless for compelling cleanup. Similarly, the USMCA relies on the same process for citizens to petition the CEC when USMCA parties commit environmental violations. Still, the USMCA does not include any mechanisms for the CEC to compel action to remedy the violation.¹⁴⁵ As before, the CEC is limited to providing recommendations based on the report it develops upon compiling a factual record, yet it is still unable to enforce those recommendations.

Additionally, USMCA proponents claim that "the USMCA does a better job than NAFTA of protecting the environment."¹⁴⁶ In particular, they point to Chapter 24, which is specific to the environment. However, Chapter 24 essentially recites provisions previously contained in the NAAEC. Aside from the CEC complaint process, Chapter 24 contains similar requirements of USMCA parties, including that "no Party shall fail to effectively enforce its environmental laws through a sustained or recurring course of action or inaction in a manner affecting trade or investment between the Parties, after the date of entry into force of this Agreement."¹⁴⁷ The lack of enforceability of the USMCA's environmental provisions is not only indicated by its failure to include any reference to sanctioning procedures, but by the actions taken by USMCA parties. For example, during USMCA negotiations, in addition to weakening other environmental protections, the U.S. EPA announced its intent to lower mercury standards for the benefit of the U.S. industrial interests.¹⁴⁸ The U.S. government's actions during USMCA drafting suggests that the environmental provisions may serve performative means, rather than provide legitimate protection. The environmental provisions included in Chapter 24, as with the NAAEC, fail to provide any effective means to genuinely protect border communities.

Of the novel environmental protections included in Chapter 24, the focus is on fishery management, ship pollution, and species conservation. For instance, the U.S. Trade Representative requested consultations with the U.S. and Mexico to reaffirm both parties' commitment to protecting the

144. Brice Simeu, *Free Trade 2.0: How USMCA Does a Better Job Than NAFTA of Protecting the Environment*, CONVERSATION (Sept. 24, 2020), <https://perma.cc/GGU5-N3C>.

145. 19 U.S.C.A. § 4714.

146. Simeu, *supra* note 144.

147. 19 U.S.C.A. §§ 4714 – 4715.

148. Scott Vaughan, *USMCA Versus NAFTA on the Environment*, INT'L INST. FOR SUSTAINABLE DEV. (Oct. 3, 2018), <https://perma.cc/JVJ9-9ZW4>.

vaquita porpoise under the USMCA.¹⁴⁹ While protection of the critically endangered vaquita is vital, the USMCA failed to include any practical mechanism for addressing underlying causes of the water quality issues that impact the vaquita in Baja California. Such an oversight is indicative of how seriously the USMCA parties take the environmental protections in the agreement. Further, as a free trade agreement, the USMCA fails to acknowledge the direct and indirect consequences that trade liberalization has upon the environment, and ultimately, the vaquita.

So, while the USMCA does provide needed funding for an immediate, short-term solution to the border sewage issue, the new agreement fails to include any provisions that would empower communities against foreign companies. Nor does it remedy weak areas of NAFTA that prevented the CEC from requiring compliance with the terms of the agreement.

B. MEXICAN ENVIRONMENTAL REGULATION AND EFFICACY

Aside from the legal regimes in place, the public institutions intended to enforce environmental provisions struggle to regulate the maquiladora industry. So, despite the existence of very powerful and proactive environmental laws, the Mexican government encounters many obstacles in monitoring and prosecuting foreign maquiladora owners.

In Mexico the functional equivalent to the U.S. EPA is the SEMARNAT.¹⁵⁰ Established in 1988, SEMARNAT oversees Mexico's 1988 environmental law, the General Law of Ecological Equilibrium and Protection of the Environment (LGEEPA). In 1992, Procuraduría Federal para la Protección del Ambiente (Profepa) emerged as the enforcement division of SEMARNAT to track and monitor hazardous waste generated by maquiladoras.¹⁵¹ In addition to overseeing LGEEPA, SEMARNAT and Profepa enforce environmental provisions contained in the 1917 Mexican Constitution, the Federal Labor Law, and Mexico's 1971 Law to Prevent and Control Pollution.

Overall, Mexico has codified a variety of stringent environmental regulations, many of which specifically address the maquiladora regime. For example, LGEEPA contains multiple articles for protecting human health and the environment from hazardous waste exposure. Article 170 requires industry to implement safety measures to avoid "contamination with dangerous repercussions on ecosystems and their components or public health."¹⁵² Additionally, Article 134 pertains to hazardous waste cleanup of

149. OFF. OF THE U.S. TRADE REPRESENTATIVE, *USTR Announces USMCA Environment Consultations with Mexico*, (Feb. 10, 2022), <https://perma.cc/SJK4-QNQP>.

150. SEMARNAT is also known as the "Ministry of Environment and Natural Resources."

151. Stromberg, *supra* note 22, at 26.

152. Simpson, *supra* note 117, at 168.

contaminated soils.¹⁵³ Finally, Article 55 of LGEEPA reiterates the Repatriation Rule contained in Article III of the 1983 La Paz Agreement, requiring hazardous wastes to be returned to the maquiladora's country of origin.¹⁵⁴ In addition to LGEEPA, Mexico regulates maquiladoras under Mexican Government Standard NOM-052-ECOL-1993, which defines characteristics of hazardous waste and requires proper management to avoid harming human health and the environment.¹⁵⁵

Despite having a multitude of proactive environmental protections codified into law, the Mexican government historically lacked the ability to effectively enforce those laws. A 2018 Desert Sun article discovered worsening hazardous waste pollution in the border region due to limited resources.¹⁵⁶ As a result, chronically underfunded and understaffed Mexican state and federal regulatory agencies cannot properly monitor maquiladoras.¹⁵⁷ Additionally, due to lax enforcement, another study found that "nearly half" of maquiladoras in the electronics industry failed to develop or implement the required environmental policies for their plants.¹⁵⁸

Other studies hypothesize the possibility that due to policy shortcomings and "powerful interest groups," the maquiladora industry may possess greater lobbying influence and negotiation power.¹⁵⁹ One study found that because industry members all possess similar interests, that they are likely coordinate strategic policy efforts with each other.¹⁶⁰ As a result, it is possible the industry has influence on the level of scrutiny that maquiladoras receive from Profepa and SEMARNAT.¹⁶¹ The maquiladora industry's overall influence enables it to engage in a cycle of closing and re-opening factories in residential Tijuana, without correcting environmental violations.¹⁶² So, whether due to policy constraints or the maquiladora industry's formidable lobbying power, Profepa's ability to effectively police factories remains inadequate.

Other studies suggest that corruption between government officials and foreign companies may contribute to the lack of enforcement. However, there are conflicting reports about whether large corporations engage in bribery. Lori Wallach with Public Citizen's Global Trade Watch conceded that "Mexican legislation is very advanced and it's very strict, but

153. *Id.*

154. Schatan, *supra* note 65, at 119.

155. *Id.*

156. James & Meyers, *supra* note 121.

157. *Id.*

158. Schatan, *supra* note 65, at 119.

159. Stromberg, *supra* note 22, at 14.

160. *Id.*

161. *Id.*

162. *Id.* (explaining that maquiladoras are generally banned from operating in residential neighborhoods under Mexican law, however they continue to maintain their presence there with minimal law repercussions).

it's not obeyed—because everything gets solved with bribes.”¹⁶³ Still, despite the prevalence of corruption, Wallach is among other researchers who believe it's less likely that multinational corporations engage in corruption due to their formalized bribery-reporting channels.¹⁶⁴ Some studies even suggest that due to laws like the Foreign Corrupt Practices Act, U.S.-owned maquiladoras are under more scrutiny than their Mexican-owned counterparts.¹⁶⁵

Unfortunately, however, a recent report suggests that large, publicly traded corporations do in fact pay bribes that subsequently perpetuate Tijuana's water issues. Although companies like Samsung already receive condemnation for their dominance over Tijuana's water supplies, their water misuse extends beyond depriving residents of water access.¹⁶⁶ In 2020, following an audit of Baja California's water agency, Comisión Estatal de Servicios Públicos de Tijuana (CESPT), Governor Jaime Bonilla accused several local and international companies of bribing agency employees.¹⁶⁷ As a result, the companies paid very little for water, defrauding the state out of nearly \$49.4 million over the years—money that the state desperately needs to improve its municipal water infrastructure.¹⁶⁸ To conceal the water theft, companies such as Coca Cola, Walmart, Samsung, and Panasonic, installed drainage pipes at their factories to illegally dump untreated wastewater into canals feeding into the Tijuana River.¹⁶⁹ While some accused companies denied any wrongdoing, Imperial Beach mayor Serge Dedina admitted that government officials suspected bribery.¹⁷⁰ Upon questioning, Mayor Dedina stated, “it all makes sense now—why the situation deteriorated so quickly and why they never seemed to be able to fix anything. Some of the most powerful, wealthy corporations in the world we now know contributed to our sewage crisis.”¹⁷¹ So, regardless of the purported scrutiny that large, multinational companies encounter, many take advantage of Mexico's inability to effectively regulate.

Despite the environmental protections that the Mexican government codified to law, Profepa and SEMARNAT remain too under-resourced to genuinely effectuate those laws. Whether Mexico's lax enforcement is due to regulatory constraints, corruption, or political influence, it is clear that

163. James & Meyers, *supra* note 121.

164. *Id.*

165. *Id.*

166. Stromberg, *supra* note 22, at 14.

167. Saldana, *supra* note 17.

168. Wendy Fry, *Baja California Governor Accuses Big US Companies of Water Theft*, SAN DIEGO UNION TRIB. (July 4, 2020, 6:00 AM), <https://perma.cc/FM6U-ZM8Z>.

169. *Id.*

170. Wendy Fry, *Baja California Goes After Big Industry Water Users*, MEX. NOW (Aug. 5, 2020), <https://perma.cc/V535-XA7D>.

171. Fry, *supra* note 167.

Id.

foreign-owned companies exploit the Mexican people and environment via the maquiladora regime.

C. EPA'S COMPREHENSIVE INFRASTRUCTURE SOLUTION

Perhaps due to the failures of the current legal regimes and approaches implemented to abate polluted transboundary flows, Congress appropriated \$300 million to the EPA.¹⁷² In coordination with bi-national stakeholders, the EPA developed the Solution, which comprises multiple wastewater infrastructure projects along the border.¹⁷³ The Solution was the costliest option considered, but it promises a holistic solution to the border pollution crisis, at least until 2050.¹⁷⁴

While the Solution is necessary to provide a near-term fix, both the cost and the longevity of the Solution undermine hopes of achieving anything long-term. For instance, the Solution is reminiscent of the South Bay International Wastewater Treatment Plant in San Ysidro. As proposed in the early 1990s, the South Bay Plant could treat over twenty-five million gallons of water daily and would complete secondary treatment.¹⁷⁵ Unfortunately, due to funding constraints, the plant was not built to proposed scale and is regularly overburdened. Also, the remaining funding did not become available for the South Bay Plant to complete secondary treatment until 2010.¹⁷⁶ While the EPA suggested a phased approach to implementing the Solution, the unplanned, phased approach taken at the South Bay Plant resulted in over a decade of noncompliance with the CWA. Additionally, the fully constructed Solution only has a lifespan until 2050.¹⁷⁷ While that does provide at least two decades of reduced pollution flows, it is consistent with the same approach taken at the border. As with the South Bay Plant, the last time a bi-national government effort achieved upgraded wastewater treatment systems at the border was nearly thirty years ago.

Overall, the Solution provides an almost-immediate fix, but the costliness of the government's routine approach indicates the importance of proactively addressing the underlying causes. Doing so requires viewing the maquiladora program and the border water quality crisis as part of one issue. Unfortunately, public governance remedies continue to confront both problems as two separate matters. So, instead of relying on government institutions, consumers and private interest groups should implement proactive solutions on their own.

172. See *supra* Part IV, A.

173. Interview with Trisha Mejia, *supra* note 96.

174. ENV'T PROT. AGENCY, *supra* note 15.

175. Smolens, *supra* note 21.

176. Lee, *supra* note 78.

177. ENV'T PROT. AGENCY, *supra* note 15.

V. PRIVATE ENVIRONMENTAL GOVERNANCE SOLUTIONS

The private environmental governance (PEG) model does not offer a comprehensive solution for the border water pollution issue, nor should it be considered a substitute for government regulation.¹⁷⁸ Rather, PEG strategies may bolster public governance because government regulatory mechanisms may be ineffective on their own.¹⁷⁹ By framing environmental problems as market failures, the model suggests that NGOs can supplement government advocacy by informing the public about harms associated with the production of certain goods.¹⁸⁰ In turn, consumers can express their preferences for environmentally-friendly practices through market behavior, rather than relying on political processes.¹⁸¹ According to Vandenberg, many individuals favor environmental protection, but participating in the political process can feel burdensome and futile.¹⁸² Alternatively, however, PEG enables consumers to impose their environmental preferences upon corporations to achieve “traditionally governmental ends,” such as monitoring and enforcement.¹⁸³ As such, PEG strategies could enable U.S. consumers to express their preference for sustainable practices through purchasing decisions.¹⁸⁴

When applied to the maquiladora industry’s contribution to water pollution in Tijuana, many public regulatory regimes purportedly exist to limit factories’ impact upon the environment. Unfortunately, the regulatory regimes in place prove ineffective at reducing externalities posed by rapid industrialization and trade liberalization at the border. Due to the incentive for companies to exploit common pool resources under NAFTA and the USMCA with negligible regulatory enforcement, illegal wastewater and hazardous waste dumping into the Tijuana River continues unabated. A 2020 report on corporations stealing water and dumping polluted wastewater into the Tijuana River revealed that well-known companies continue these practices today. Based on the history, on their own, the current public governance mechanisms offer little hope for any proactive solution to maquiladora-generated wastewater dumping.

178. Michael P. Vandenberg, *Private Environmental Governance*, 99 CORNELL L. REV. 129, 163 (2013).

179. *Id.*

180. *Id.* at 144; Michael P. Vandenberg, *The New Wal-Mart Effect: The Role of Private Contracting in Global Governance*, 54 UCLA L. REV. 913, 950 (2007) (discussing that the MSC and FSC certifications both impose requirements that exceed legal requirements).

181. Vandenberg, *supra* note 178, at 144.

182. *Id.*

183. *Id.* at 133, 147.

184. Vandenberg, *supra* note 180, at 959, 969.

A. LARGE-SCALE PRIVATE ORDERING & ECO-LABELING SYSTEMS

As a potential part of the solution, Vandenberg suggests that large-scale private ordering methods, such as private certification and eco-labeling systems, may effectively address environmental problems that occur on a global scale.¹⁸⁵ For instance, in cases where environmental problems cross international boundaries, consumers often desire to promote sustainable practices but lack adequate tools and information.¹⁸⁶ Despite consumer preferences, however, most individuals are too far removed from the issue to meaningfully engage. For the communities harmed by companies, “the actors causing the harm are numerous and operate far from those who might be harmed.”¹⁸⁷ So, even when local groups undertake efforts to hold polluting companies accountable, their actions may be “noncomprehensive” and insufficient for addressing problems that occur on a global scale. Eco-labeling systems prioritize informed purchasing to overcome collective action barriers that hinder efforts of individuals in importing and exporting countries.¹⁸⁸ NGOs can then act as intermediaries for expressing consumer pressure, disseminating information, and targeting companies.¹⁸⁹ Labeling systems can overcome the limitations of local advocacy when addressing issues that are global in scope by enabling conscientious consumers to contribute to private governance actions.

Because the difficulty of engaging distant consumers creates barriers to collective action, labeling systems influence buying behavior by informing consumers and drawing on a buyer’s assumed environmental preferences.¹⁹⁰ According to Vandenberg, studies indicate that many consumers possess strong preferences for environmentally sourced and supplied products.¹⁹¹ Although labeling seems like a minute action compared to a significant issue, informed-purchase decisions enable consumers to “act on his or her preferences if the government is unable or unwilling to act.”¹⁹² Additionally, labeling systems require minimal effort on the consumer’s part

185. Vandenberg, *supra* note 178, at 165–66.

186. *Id.* at 165.

187. *Id.*

188. See Vandenberg, *supra* note 180, at 920, (explaining that consumers in importing countries with preferences for reducing environmental harms encounter many collective action barriers, such as: sovereignty limitations to regulating companies operating in other countries, rallying political interest in the importing country, engaging the government of the importing country to act, and influencing the practices of multiple foreign countries).

189. *Id.* at 947.

190. Vandenberg, *supra* note 178, at 166.

191. *Id.*

192. *Id.* at 167.

and help overcome barriers that arise when individuals cannot affect change via political channels.¹⁹³

Due partly to the ease for advocacy groups to engage interested consumers, eco-labeling systems continue to grow in prominence, with over 400 systems in place internationally.¹⁹⁴ Typically, NGOs set standards within an industry, certify companies' compliance with those standards, and then allow companies to display certification labels on their products. Today's eco-labeling model is based on the popularity and success of the Forest Sustainability Council (FSC) and Marine Stewardship Council (MSC) certification labels. To improve companies' environmental practices, NGOs may impose environmental performance requirements that exceed the exporting countries' legal requirements or "require compliance with the host country's laws."¹⁹⁵ And, so long as a significant portion of the population already prefers the specified environmental protection, advocacy groups may only need to publicize information about troublesome industry practices.¹⁹⁶

The popularity of eco-labeling can also be attributed to the system's cost-effective alternative to lobbying the government by enabling advocacy groups to target prominent industry leaders. For instance, after the 1992 collapse of the Grand Banks Cod Fishery in Canada, conservationists began negotiations with the Unilever company.¹⁹⁷ By 1998, the MSC Fisheries Standards emerged, and by 1996 became the first organization to meet consistency with the United Nations Food and Agriculture Organization Guidelines on eco-labeling of seafood products.¹⁹⁸ As of 2006, MSC-certified fisheries demonstrated improved management practices.¹⁹⁹ Later, when consumers learned about tuna fishing that harmed dolphins, retailers sought only to sell canned tuna with dolphin-safe labels.²⁰⁰ So now, despite no legal requirements to avoid dolphins in tuna bycatch, there is no market for tuna without dolphin-safe labeling.²⁰¹ Additionally, even if consumer demand is not as great, the influence imposed upon companies via eco-labeling systems may still shift practices.²⁰²

193. *Id.*

194. *Id.* at 148.

195. *Id.*

196. *Id.* at 169.

197. *Our History*, MARINE STEWARDSHIP COUNCIL, <https://perma.cc/MJM4-YJVS> (last visited Oct. 29, 2022).

198. Vandenberg, *supra* note 178, at 148.

199. *Id.* at 190.

200. *Id.*

201. *Id.*

202. *Id.* at 167 (suggesting that PEG strategies compel large companies to alter their practices due to their desire to maintain a favorable public image and because of the heightened scrutiny in response to negative media).

Concerning Tijuana's maquiladoras, a significant hurdle to collective action is the complexity of the regulatory regimes and the scale of the consumer markets involved. For residents, the formal channels available under the USMCA make filing petitions to the CEC burdensome and sometimes inaccessible to those affected. Moreover, even if residents successfully petition the CEC, the resulting CEC recommendations cannot be enforced against parties. While residents can file complaints directly with Profepa, the structure of the maquiladora regime thwarts Profepa's ability to prosecute guilty companies or demand cleanup. Finally, should residents file complaints directly with the companies in their neighborhoods, the channels for contacting the appropriate individuals at a foreign company can be daunting. As a result, small communities may feel overpowered and defenseless against multinational corporations with maquiladora plants near their homes. Fortunately, however, local NGOs continue to advocate for Tijuana residents and help maquiladora workers organize against companies. Still, while local NGOs, such as EHC, have had success in this arena, the inability to bring awareness to the average American consumer limits the impact of their efforts.

For American consumers, the lack of accessible information about the maquiladora industry's role in manufacturing their products creates barriers to collective action in the U.S. Despite a reportedly high consumer preference for sustainably produced goods, the reality is that most consumers are unaware of the maquiladora regime or how the USMCA affects them. The fact that big-name electronics companies and online fulfillment centers commonly rely on maquiladoras for labor is, unfortunately, relatively unknown. A 2002 study found that maquiladoras suffer from a notably worse information failure than other industries.²⁰³ American stakeholders are geographically separated from factories, but it is also challenging to unravel the maquiladora industry's role within the production chain.²⁰⁴ So, although scholars, reporters, and groups like EHC manage to publish articles in major newspapers, information about the maquiladora industry has yet to infiltrate a wider audience. It is unlikely that an earnest consumer and reader will consider where their Samsung television was assembled or how it was manufactured. For both American consumers and Tijuana residents, untangling the web of information about manufacturing and the maquiladora industry creates a barrier to any meaningful first-order collective action. Due to the constraints associated with engaging political processes or multinational corporations, private certification and labeling systems offer a potential method for consumers to demand environmental compliance.

203. Stromberg, *supra* note 22, at 15.

204. *Id.*

B. ECO-LABELING SYSTEM FOR MAQUILADORA-PRODUCED ELECTRONICS

Implementing a private eco-labeling certification system could ameliorate an underlying cause of the border water quality issue. Currently, the structure of the maquiladora industry renders collective action susceptible to informational barriers for both Mexican and American stakeholders. In addition to informational barriers, the formal procedures available for environmental enforcement under the USMCA do not empower local stakeholders to hold polluting companies accountable.

Instead, a wide-reaching informational campaign coupled with pressure placed on well-known corporations to participate in an eco-labeling system may address gaps in regulatory enforcement. For example, possible certification standards may require companies to invest in local water treatment infrastructure, comply with Mexico's environmental laws, or treat hazardous waste. Because many multinational corporations operate maquiladoras in Tijuana, NGOs can coerce companies by generating public awareness about environmental violations committed during the production of commonly purchased electronics. So, by threatening brand reputation, such an effort could influence companies to improve practices at maquiladoras to participate in a certification system.

Alternatively, because consumers reportedly demand more transparency about the supply chain, a potential certification system could target all electronics companies.²⁰⁵ Rather than only demanding informational labeling from companies that utilize maquiladora labor, all companies could certify that they complied with environmental standards. In addition, the system could require that companies disclose details about their manufacturing process in an easily accessible manner to receive certification. Doing so could overcome the challenge of coercing participation from maquiladora-specific companies while still demystifying the role that maquiladoras have in the supply chain.

Even as well-known companies continue to steal water and dump polluted wastewater, many consumers remain unaware of the practice. The complicated maquiladora regime obfuscates how the American consumer market contributes to the border water quality issue. City governments, like San Diego, continue to advertise the maquiladora industry while castigating the Mexican and U.S. governments for failure to address transboundary pollution flows. Doing so not only prioritizes profit over peoples' health but it also frames the issue as two separate, unrelated problems. On the other hand, NGOs and reporters have connected the maquiladora industry's illegal dumping to worsening water quality for decades. As such, NGOs are uniquely positioned to connect American consumer purchasing

205. Banker, *supra* note 5.

decisions to the real impacts of manufacturing on human health and the environment for Mexico and the U.S.

Rather than focusing primarily on political advocacy, which has had minimal success, NGOs may consider shifting their effort to consumer education. Doing so will help unravel the complicated production process involving maquiladoras, thus empowering conscious consumers to make more informed purchasing decisions.

C. POTENTIAL DRAWBACKS AND PITFALLS

Although eco-labeling presents an alternative channel for enforcing environmental regulations at maquiladoras, the model has its shortcomings. Potential shortcomings include the incidence of greenwashing, NGO resources and capacity, and company response. Regarding greenwashing, reports find that companies may adopt eco-labeling practices while failing to improve environmental practices. In response to consumer pressure, companies may falsely claim to be eco-friendly to maintain a positive public image.²⁰⁶ Also, to effectively create a private certification system, NGOs need substantial funding and the capacity to implement an informational campaign and develop standards.²⁰⁷ After implementation, NGOs require continued resources to monitor companies to ensure company accountability and compliance with the system.²⁰⁸ Lastly, efforts to coerce companies into adopting improved environmental practices to participate in a certification system depend heavily upon company response. Vandenberg suggests that a significant portion of the population needs to possess the environmental preference that the certification aims to improve to assert pressure on the companies.²⁰⁹

Administering eco-labeling standards in Tijuana's maquiladora industry could place additional burdens on local NGOs. While local NGOs and stakeholders possess intimate knowledge of the conditions and practices at factories, they also support local advocacy efforts. For example, several local NGOs regularly educate community members about health risks while providing support and resources to maquiladora workers. Establishing a private certification standard would require significant resources from organizations that already dedicate much of their resources to working closely with the community. Unfortunately, the funding necessary to launch a massive informational campaign and develop standards could potentially overburden organizations that best advocate for local stakeholders.

206. For a deeper discussion of greenwashing, *see generally* Vandenberg, *supra* note 180.

207. Vandenberg, *supra* note 178, at 169.

208. *See generally id* for a discussion on corporate accountability in private environmental contracting.

209. *Id.* at 168.

Potential funding limitations also implicate the success of any consumer education efforts. For any large, multinational companies with maquiladoras to feel any pressure, a wide-reaching media effort may be necessary to demystify maquiladoras' role in production genuinely. Although the maquiladoras provide job opportunities and hope of economic prosperity, a successful media campaign must inspire consumer pressure for companies to improve conditions for workers, residents, and the environment.

CONCLUSION

The wastewater pollution issue at the U.S. – Mexico border in Tijuana garners renewed political attention every few decades. With renewed political will comes project planning and enough funding to implement the initial phases of an upgraded wastewater treatment system. Not only is the federal government's accepted approach unsustainable in the long-term, it also fails to address any underlying causes.

Unfortunately, the public institutions and legal regimes tasked with protecting border water quality are either ineffective or unenforceable. The public governance approach remains ineffective unless the institutions view the maquiladora industry and the wastewater pollution issue as part of the same problem.

Instead of relying solely on the political process to resolve environmental harms posed by maquiladoras, private governance strategies may help ameliorate the problem. By demystifying the complex supply chain that involves maquiladoras, private certification and eco-labeling systems can overcome the effects of the "out of sight, out of mind" bias. In doing so, NGOs can overcome informational barriers about the maquiladora industry and empower consumers to help enforce environmental regulations.