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## Tijuana River Valley Pollution: How the Environmental Protection Agency Expects to End a Ninety-Year Environmental and Public Health Crisis

Andrew Simmons

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TIJUANA RIVER VALLEY POLLUTION: HOW THE ENVIRONMENTAL PROTECTION AGENCY EXPECTS TO END A NINETY-YEAR ENVIRONMENTAL AND PUBLIC HEALTH CRISIS

I. INTRODUCTION

The Tijuana River Valley (TRV) is a transboundary watershed that covers approximately 1,750 square miles across Mexico and the United States.<sup>1</sup> Although the TRV spans the border, most of its water flow originates in Mexico's Baja California mountain ranges and flows downhill north towards the United States.<sup>2</sup> Mexico contains approximately seventy-five percent of the TRV land area and its namesake, the Tijuana River.<sup>3</sup> The United States lacks jurisdiction over Mexico's wastewater facilities, so a bi-national cohort of federal, state, and local agencies regulates water pollution within the TRV.<sup>4</sup>

Due in part to Tijuana, Mexico's rapid industrialization and insufficient wastewater infrastructure, polluted water flows across the border into the United States and then into the Pacific Ocean with alarming frequency.<sup>5</sup> The TRV's existing wastewater infrastructure consists of a series of treatment plants, pump stations, canyon channels, and drains designed to contain or divert untreated water to South Bay International Wastewater Treatment Plant (SBIWTP) in the United States or to San Antonio de los Bue-

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1. *Tijuana River Watershed*, TIJUANA RIVER NAT'L ESTUARINE RSCH. RSRV., <https://trnerr.org/about/tijuana-river-watershed/> (last visited Dec. 28, 2020) (discussing basic geography of Tijuana River Watershed).

2. *Id.* (describing mountainous border region). Total rainfall in this region is approximately ten inches per year in low lying areas and twenty-five inches per year in the mountains. *Id.* (discussing weather data).

3. *Id.* (showing graphic illustrating watershed's range).

4. *EPA Collaboration with Mexico*, U.S. ENV'T PROT. AGENCY, <https://www.epa.gov/international-cooperation/epa-collaboration-mexico> (last visited Dec. 28, 2020) (providing overview of international environmental cooperative). The agencies include the International Boundary and Water Commission (IBWC) — United States section (USIBWC) and Mexico section (MXIBWC); the Environmental Protection Agency (EPA); and the Secretaría del Medio Ambiente y Recursos Naturales (SEMARNAT). *Id.* (listing State actors). SEMARNAT is the Federal Government of Mexico's equivalent of the EPA. *Id.* (contextualizing scope of SEMARNAT's authority).

5. *Sewage Pollution within the Tijuana River Watershed*, CAL. WATER BODS, [https://www.waterboards.ca.gov/sandiego/water\\_issues/programs/tijuana\\_river\\_valley\\_strategy/sewage\\_issue.html](https://www.waterboards.ca.gov/sandiego/water_issues/programs/tijuana_river_valley_strategy/sewage_issue.html) (last visited Dec. 30, 2020) (noting population and manufacturing growth as root causes of watershed's pollution).

nos Wastewater Treatment Plant (SABTP) in Mexico.<sup>6</sup> On dry days, unmaintained and aging infrastructure components regularly fail; when it rains, however, the infrastructure is incapable of diverting the increased water flow.<sup>7</sup>

In February 2017, California closed its beaches for weeks after a burst pipeline in Mexico spilled 143 million gallons of sewage into the Tijuana River and flowed into the Pacific Ocean.<sup>8</sup> The spill emanated a putrid smell and was visible from the air as a swath of brown water contrasted against the blue Pacific from the Tijuana River Estuary to Coronado, California.<sup>9</sup> In the years since, hundreds of millions of gallons of untreated or partially-treated wastewater continues to flow into the Pacific Ocean or across the southern border weekly.<sup>10</sup> Fortunately, under the 2020 United States-Mexico-Canada Agreement (USMCA), Congress appointed the Environmental Protection Agency (EPA) to develop wastewater infrastructure solutions to combat TRV pollution.<sup>11</sup>

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6. GEORGE McMAHON, N. AM. DEV. BANK, ET AL., *TIJUANA RIVER DIVERSION STUDY: FLOW ANALYSIS, INFRASTRUCTURE DIAGNOSTIC AND ALTERNATIVES DEVELOPMENT ES-3* (2019) [hereinafter *DIVERSION STUDY*], [https://www.nadb.org/uploads/files/tijuana\\_river\\_diversion\\_study\\_final\\_report\\_full\\_sm.pdf](https://www.nadb.org/uploads/files/tijuana_river_diversion_study_final_report_full_sm.pdf) (illustrating Tijuana River wastewater infrastructure's schematics); see also Lesley Stahl, *Raw Sewage Flowing into the Tijuana River Brings Toxic Sludge to California*, CBS (May 31, 2020), <https://www.cbsnews.com/news/raw-sewage-southern-california-coast-tijuana-mexico-60-minutes-2020-05-31/> (describing multifaceted water treatment system). Adding to the problem inadequate infrastructure poses, manufacturing and household waste clogs drains, grates, and pumps, resulting in wastewater spilling out of its containments. *Id.* (demonstrating that other waste disposal issues compound difficulties with wastewater treatment initiatives).

7. *Id.* (reporting rainwater causes "raging river" of pollutants that overburdens already stressed infrastructure). Further, a 2019 International Boundary and Water Commission study determined that up to thirty percent of Tijuana's wastewater enters the Tijuana River without treatment. See U.S. GOV'T ACCOUNTABILITY OFF., GAO-20-307, *INTERNATIONAL BOUNDARY AND WATER COMMISSION: OPPORTUNITIES EXIST TO ADDRESS WATER QUALITY PROBLEMS 34* (2020) [hereinafter *GAO, REPORT TO CONGRESS*], <https://www.gao.gov/products/GAO-20-307> (determining lack of maintenance partly causes system failure).

8. GAO, *REPORT TO CONGRESS*, *supra* note 7 (providing recent example of catastrophic system failure).

9. Scott Ridout, *Tijuana River: The Largest Sewage 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> (supplying photograph of spill and describing consequences of 2017 incident).

10. See Joshua Emerson Smith & Wendy Fry, *Tijuana Sewage Pounded South Bay Beaches Last Year. EPA Says Help Is on the Way*, SAN DIEGO UNION-TRIBUNE (Feb. 13, 2021, 7:00 AM), <https://www.sandiegouniontribune.com/news/environment/story/2021-02-13/tijuana-sewage-san-diego-beaches> (noting southernmost beach in San Diego County, California, closed 295 days in 2020).

11. For a discussion of the USMCA and the EPA's proposed solutions to the border pollution crisis, see *infra* notes 152-90 and accompanying text.

This Comment explores the history of water pollution in the TRV and the EPA's proposed solutions to the wastewater crisis.<sup>12</sup> Part II discusses wastewater legislation, diplomatic efforts to resolve the issue, and a brief history of the industrialization of Tijuana, Mexico.<sup>13</sup> Part III explores the contemporary status of wastewater pollution in the TRV.<sup>14</sup> Part IV discusses how the EPA, acting pursuant to the USMCA, proposes to remedy TRV wastewater pollution in the United States and Mexico.<sup>15</sup>

## II. DIPLOMATIC AND HISTORICAL BACKGROUND

Wastewater infrastructure in the United States is subject to the Clean Water Act's (CWA) requirements; thus, an analysis of the CWA contextualizes the confines that lawmakers must work within to find a solution to border water pollution.<sup>16</sup> Furthermore, because the TRV transverses the border and its waters are subject to the jurisdiction of both Mexico and the United States, discussing the region's diplomatic history provides perspective on the difficulties of finding a solution to the water pollution problem.<sup>17</sup> Similarly, an examination of Tijuana's population growth and industrialization is helpful to understand the wastewater pollution crisis's origins within the TRV.<sup>18</sup>

### A. The Clean Water Act

Congress enacted the CWA to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters."<sup>19</sup> As such, the CWA forbids the "discharge of any pollutant" from point sources into navigable waters.<sup>20</sup> The CWA limits pollution into nav-

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12. For a discussion of the problem and proposed solutions, see *infra* notes 73-212 and accompanying text.

13. For an overview of legislative, diplomatic, and historical developments, see *infra* notes 16-72 and accompanying text.

14. For a discussion of the current state of the issue, including studies conducted by the EPA on TRV waters, see *infra* notes 73-151 and accompanying text.

15. For a discussion of the EPA's proposed solutions, see *infra* notes 152-212 and accompanying text.

16. For a discussion of the CWA, see *infra* notes 19-30 and accompanying text.

17. For a discussion of the various treaties addressing the TRV, see *infra* notes 31-51 and accompanying text.

18. For a discussion of Tijuana's industrialization, see *infra* notes 52-72 and accompanying text.

19. Clean Water Act, 33 U.S.C. § 1251(a) (1972) (stating congressional goals of CWA).

20. *Id.* § 1311 (prohibiting discharge of pollutants into waters).

igable waters through the National Pollutant Discharge Elimination System (NPDES).<sup>21</sup>

A person violates the CWA if the person directly discharges pollutants into navigable waters from “point sources” or if the person discharges pollutants to groundwaters that reach navigable waters in a “functional equivalent of a direct discharge.”<sup>22</sup> Persons who violate the CWA can face considerable civil and criminal penalties, including prison time.<sup>23</sup> NPDES permits, however, relieve liabilities for persons who discharge pollutants into water, subject to state-approved limitations.<sup>24</sup>

The NPDES program, under the EPA’s oversight, grants certain states and territories the power to issue permits.<sup>25</sup> Interested parties may apply for individual permits or receive general permits through state permitting authorities or the EPA.<sup>26</sup> Once a permitting authority issues the NPDES permit, the discharging facility is regulated by the permit’s effluent limitations, which mandate the amount and type of pollutants the facility may discharge into waters.<sup>27</sup>

In wastewater treatment plants, technology-based effluent limitations and water quality-based effluent limitations manage the amount of pollutants discharged to waters.<sup>28</sup> Technology-based limitations utilize “demonstrated technologies” to reduce the dis-

21. *Id.* § 1342(a)(1) (describing NPDES’s purpose).

22. *Cty. of Maui v. Haw. Wildlife Fund*, 140 S.Ct. 1462, 1468, 1477 (2020) (articulating elements of CWA violation). Under the CWA, a “person” is “an individual, corporation, partnership, association, State, municipality, commission, or political subdivision of a State, or any interstate body.” 33 U.S.C. § 1362(5) (defining “person”).

23. *See generally* 33 U.S.C. § 1319 (describing fines and punishments for CWA violations). Negligent criminal violations “shall be punished by a fine of not less than \$2,500 nor more than \$25,000 per day of violation, or by imprisonment for not more than 1 year, or by both.” *Id.* § 1319(c)(1)(B) (stating potential penalties for criminal violations of CWA).

24. *See* 33 U.S.C. § 1342(a)(1) (providing overview of NPDES).

25. *See About NPDES*, U.S. ENV’T PROT. AGENCY, <https://www.epa.gov/npdes/about-npdes#overview> (last visited Aug. 23, 2020) (exploring states’ role in NPDES permit issuance). Forty-seven states, and one territory, currently possess NPDES permitting power. *Id.* (noting NPDES grants majority of states authority to issue permits).

26. *Id.* (outlining application process). Individual permits are “specifically tailored to an individual facility.” *Id.* (detailing individual permits). General permits cover a group of facilities that share “similar qualities within a given geographical location.” *Id.* (defining group permits).

27. *See NPDES Permit Limits*, U.S. ENV’T PROT. AGENCY (Aug. 31, 2020), <https://www.epa.gov/npdes/npdes-permit-limits> (providing effluent limitations as “primary mechanism” for controlling pollutant discharges). Effluent is the pollution or sewage contained in treated wastewater. *Id.* (explaining effluent).

28. *See id.* (naming two primary effluent limitation standards).

charge of pollutants into navigable waters.<sup>29</sup> In contrast, water quality-based limitations “consider the impact of the proposed discharge on the quality of the receiving water,” and are focused on meeting state water quality criteria.<sup>30</sup>

#### B. Water Treaties and Conventions Between the United States and Mexico

The Convention of 1889 established the International Boundary Commission (IBC) to resolve diplomatic issues arising from various land use disputes at the United States-Mexico border.<sup>31</sup> Due to the arid region of the border, access to usable water became an important and recurring consideration in successive treaties between the nations.<sup>32</sup> Subsequently, the 1906 Convention governed the obligation of the United States to deliver sixty thousand acre-feet of water annually from the Rio Grande River to Mexico for agricultural irrigation.<sup>33</sup> The Water Treaty of 1944 (1944 Treaty), however, laid the foundation for modern cooperative efforts for water rights and usage.<sup>34</sup>

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29. See U.S. ENV'T PROT. AGENCY, EPA-833-K-10-01, NPDES PERMIT WRITER'S MANUAL 5-1 (2010), [https://www.epa.gov/sites/default/files/2015-09/documents/pwm\\_2010.pdf](https://www.epa.gov/sites/default/files/2015-09/documents/pwm_2010.pdf) (discussing scope and premise of technology-based effluent limitations). Although the EPA has not defined “demonstrated technologies,” they are the best available wastewater technology at the time a facility is built. *Id.* at 5-16 (noting that dischargers may incorporate best available demonstrated technologies at time of construction).

30. *Id.* at 6-1 (defining water quality-based effluent limitations). Once the permitting authority determines the appropriate technology-based and water quality-based effluent limitations, the permitter decides the final effluent limitations the facility is subject to. *Id.* at 7-1 (describing final step in effluent limitations determination).

31. Convention to Avoid the Difficulties Occasioned by Reason of the Changes Which Take Place in the Bed of the Rio Grande and That of the Colorado River, Mex.-U.S., art. I, Mar. 1, 1889, 26 Stat. 1512 [hereinafter Treaty of 1889], [https://www.ibwc.gov/Files/TREATY\\_OF\\_1889.pdf](https://www.ibwc.gov/Files/TREATY_OF_1889.pdf) (providing impetus for Treaty).

32. See, e.g., Convention Providing for the Equitable Distribution of the Waters of the Rio Grande, Mex.-U.S., May 21, 1906, 34 Stat. 2953 [hereinafter 1906 Treaty], <https://www.ibwc.gov/Files/1906Conv.pdf> (demonstrating water rights concerns quickly displaced land disputes).

33. *Id.* at art. I (describing obligations under 1906 Convention). The distribution of sixty thousand acre-feet of water was divided across the twelve-month calendar year, with most of the distribution occurring during the summer months. *Id.* at art. II (noting allocation schedule). The total yearly water sharing commitment agreed upon in the 1906 Convention was approximately 19.560 billion gallons annually. See *What's An Acre Foot*, WATER EDUC. FOUND., <https://www.watereducation.org/general-information/whats-acre-foot> (last visited Jan. 18, 2021) (quantifying acre-foot of water as approximately 326 thousand gallons).

34. Treaty Relating to the Utilization of Waters of the Colorado and Tijuana Rivers and of the Rio Grande, Mex.-U.S., art. I, Nov. 8, 1945, 59 Stat. 1219 [herein-

### 1. *Water Treaty of 1944*

The 1944 Treaty established the International Boundary and Water Commission (IBWC) and formalized many of the IBWC's contemporary roles, responsibilities, and procedures.<sup>35</sup> The Treaty called for construction of multiple water storage dams, flood control levees, and “works for the canalization, rectification and artificial channeling of” rivers along the southern border.<sup>36</sup> The 1944 Treaty delegated responsibility to the IBWC for the operation and maintenance of a few projects; however, maintenance of most works were subject to the jurisdiction of the country where they were located.<sup>37</sup>

Additionally, the 1944 Treaty mandated that future IBWC rules and resolutions would be submitted to each government for approval as “Treaty Minutes.”<sup>38</sup> If both governments approved the IBWC Minute, the IBWC would execute the Minute in accordance with each nation's water laws.<sup>39</sup> Moreover, the 1944 Treaty listed an “order of preferences” for the utilization of border waters.<sup>40</sup> Accordingly, because several water uses were intended for human consumption or agriculture, the 1944 Treaty required the IBWC “to give preferential attention to the solution of all border sanitation problems.”<sup>41</sup>

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after 1944 Treaty], <https://www.ibwc.gov/Files/1944Treaty.pdf> (extending 1889 Convention between United States and Mexico “indefinitely”).

35. *Id.* at art. 2 (noting name change from IBC to IBWC). In addition to changing names, the 1944 Treaty allocated greater enforcement powers to the IBWC than its predecessor. *See generally id.* (granting IBWC international body and diplomatic statuses). The IBWC component for each country is called a “Section.” *See id.* (establishing naming convention).

36. *Id.* at art. 6 (describing engineering projects along Rio Grande, Colorado, and Tijuana Rivers).

37. *Id.* at arts. 9, 24 (establishing allocation of maintenance requirements). The Treaty provided that “[e]ach Section shall have . . . jurisdiction over the works constructed exclusively in the territory of its country whenever such works shall be connected with or shall directly affect the execution of the provisions of this Treaty.” *Id.* at art. 24 (noting sovereignty of government works).

38. *Id.* at art. 25 (requiring IBWC to submit future agreements in “Minutes”).

39. 1944 Treaty, *supra* note 34, at art. 25 (specifying approval process for IBWC Minutes).

40. *Id.* at art. 3 (prioritizing uses of shared waters). The order of preferences is: “1. Domestic and municipal uses. 2. Agriculture and stock-raising. 3. Electrical power. 4. Other industrial uses. 5. Navigation. 6. Fishing and hunting. 7. Any other beneficial uses which may be determined by the Commission.” *Id.* (listing preferences).

41. *Id.* (appointing IBWC with resolving sanitary problems). Later, the IBWC defined “border sanitation problem” as “each case in which the waters that cross the boundary, including coastal waters . . . have sanitary conditions that present a hazard to the health and wellbeing of the inhabitants of either side of the border or impair the beneficial uses of these waters.” Minute 261 of the International

## 2. *Minutes 283 and 320*

IBWC Minute 283, signed in 1990, provided that the IBWC construct and administer a water treatment facility in the United States to treat excess sewage in the TRV.<sup>42</sup> Minute 283 required that the future USIBWC facility must have the capacity to treat up to twenty-five million gallons of wastewater per day (MGD) that crossed the international border.<sup>43</sup> In addition to the border wastewater treatment facility, Minute 283 recommended constructing diversion infrastructure to channel excess sewage from Tijuana and the river channel to the United States for treatment and disposal.<sup>44</sup>

In 1999, the IBWC completed construction on the SBIWTP along the border in the United States.<sup>45</sup> The SBIWTP, following specifications outlined in Minute 283, had the capacity to process up to twenty-five MGD of Tijuana River wastewater that were unable to be treated in Mexico.<sup>46</sup> Furthermore, the SBIWTP's infrastructure accommodated an additional seventy-five MGD for emergency overflow situations.<sup>47</sup>

In October 2015, Minute 320 reaffirmed each nation's commitment to stymying transborder water pollution.<sup>48</sup> Minute 320 estab-

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Boundary and Water Commission concerning recommendations for the solution to the border sanitation problems, Mex.-U.S., Sept. 24, 1979, 31 U.S.T. 5099 [hereinafter Minute 261], <https://www.ibwc.gov/Files/Minutes/Min261.pdf> (defining border sanitation problem).

42. Minute 283 of the International Boundary and Water Commission: Conceptual Plan for the International Solution to the Border Sanitation Problem in San Diego, California/Tijuana, Baja California, Mex.-U.S., July 12, 1990, T.I.A.S. No. 11735 [hereinafter Minute 283], <https://www.ibwc.gov/Files/Minutes/Minute283.pdf> (explaining Minute 283).

43. *Id.* (detailing minimum volume of wastewater that plant treats).

44. *See id.* (outlining plans for diversion system). In 1991, the IBWC completed construction of the Comisión Internacional de Límites y Aguas (PB-CILA), a pump station designed to divert river and sewage flow to the SBIWTP or the SABTP for treatment. *CILA Pump Station Operations and Notification Protocol*, IBWC, [https://www.ibwc.gov/Files/CILA\\_EmergencyProtocol\\_101817.pdf](https://www.ibwc.gov/Files/CILA_EmergencyProtocol_101817.pdf) (last visited Oct. 21, 2021) (explaining plans for PB-CILA derived from Minute 283 recommendations). For a further discussion detailing PB-CILA's role in the system, see *infra* notes 76-89.

45. *South Bay International Wastewater Treatment Plant (SBIWTP)*, IBWC, [https://www.ibwc.gov/Mission\\_Operations/sbiwtp.html](https://www.ibwc.gov/Mission_Operations/sbiwtp.html) (last visited Jan. 20, 2021) (providing completion year of project). Costs for the plant totaled \$239.4 million for the United States and almost seventeen million dollars for Mexico, with Mexico agreeing to fund two million dollars per year for operation and maintenance. *Id.* (detailing total cost of project for both countries).

46. *Id.* (specifying SBIWTP capabilities).

47. *Id.* (noting SBIWTP ability to handle excessive flow due to increased rainfall or system failures in Mexico).

48. *See* Minute 320 of the International Boundary and Water Commission: General Framework for Binational Cooperation on Transboundary Issues in the

lished a Binational Corp Group (BCG) of federal and local officials to identify and coordinate solutions for ongoing border pollution issues.<sup>49</sup> Additionally, Minute 320 granted the BCG authority to create working groups of experts to address significant concerns like sediment, solid waste, and water quality.<sup>50</sup> One of the key functions of these groups is to monitor TRV pollution issues within their field of expertise.<sup>51</sup>

### C. The Industrialization of Tijuana, Mexico

By 2019, Mexico became the top trading partner to the United States, a process which can be traced to the 1960s when Mexico began its “Maquiladora Program.”<sup>52</sup> During that time, Mexico’s federal government enacted the Maquiladora Program to attract foreign investors and manufacturers to border cities to take advantage of the border region’s plentiful and low-cost labor and duty-free import laws.<sup>53</sup>

The origins of Tijuana’s population growth and manufacturing prowess coincides with the economic and societal realities in the United States.<sup>54</sup> During the Prohibition Era of the 1920s, citizens from the United States frequented Tijuana to purchase and consume alcohol, resulting in an “internal migration” of laborers to the region.<sup>55</sup> Subsequently, the United States’ entrance into the Second World War prompted agricultural workforce shortages as do-

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Tijuana River Basin, Mex.-U.S., Oct. 5, 2015 [hereinafter Minute 320], [https://www.ibwc.gov/Files/Minutes/Minute\\_320.pdf](https://www.ibwc.gov/Files/Minutes/Minute_320.pdf) (discussing Minute 320).

49. *Id.* at 1-2 (establishing BCG).

50. *See id.* at 3 (delegating authority to specialized working groups).

51. *See id.* (listing core group activities).

52. M. ANGELES VILLARREAL, CONG. RSCH. SERV., RL32934, U.S.-MEXICO ECONOMIC RELATIONS: TRENDS, ISSUES, AND IMPLICATIONS 7 (June 25, 2020) [hereinafter ECONOMIC RELATIONS], <https://fas.org/sgp/crs/row/RL32934.pdf> (describing economic relationship with Mexico). Mexico ranks second behind China for total exports to the United States markets. *Id.* at 1 (providing reference to other trading partner nations). Maquiladora translates to “twin plant” in English. *Maquiladoras/Twin Plants*, CTY. OF SAN DIEGO [hereinafter *Maquiladoras/Twin Plants*], <https://www.sandiego.gov/economic-development/sandiego/trade/mexico/maquiladoras> (last visited Jan. 27, 2021) (defining “maquiladora”).

53. ECONOMIC RELATIONS, *supra* note 52, at 8 (highlighting realities that attracted foreign investment).

54. *See* Aida Silva Hernandez, *Mapping Migration in Tijuana*, HENRY J. LEIR INST. 1, 2 (2019), [https://sites.tufts.edu/ihs/files/2019/05/Silva\\_Mapping-Migration-in-Tijuana.pdf](https://sites.tufts.edu/ihs/files/2019/05/Silva_Mapping-Migration-in-Tijuana.pdf) (describing Tijuana’s history). Tijuana’s history is “intimately tied to its position as an international border city.” *Id.* (detailing Tijuana’s position).

55. *Id.* (attributing increased Mexican tourism to United States’ Volstead Act). During this period, Tijuana’s population increased from 1,028 in 1921 to 11,271 by 1935. *Id.* (noting Tijuana’s population increase).

mestic labor requirements shifted to the defense and manufacturing sectors.<sup>56</sup> Recognizing that feeding an army was as important as equipping one, the United States and Mexico made the Agreement for the Temporary Migration of Mexican Agricultural Workers to the United States — more popularly known as the “Bracero Program” — to supplement the United States’ farm workforce with Mexican laborers.<sup>57</sup> Attracted by higher wages, an estimated 4.5 million individuals labored on United States farms between 1942 and 1964.<sup>58</sup> Consequently, Tijuana’s population grew from 21,977 to 65,364 people during the 1940s.<sup>59</sup> Concurrently, the United States enforced multiple deportation operations against undocumented Mexican laborers, resulting in the government deporting millions of migrant laborers to border communities, thus, increasing the population in that region.<sup>60</sup>

After the Bracero Program ended in 1965, Mexico created its Border Industrialization Program to incentivize foreign investment in its border communities.<sup>61</sup> To draw foreign investment to its border cities, Mexico’s government waived duties and regulations on industrial imports and raw materials that Mexico’s workers would later produce and export to other countries.<sup>62</sup> Within the first five years of the program, approximately 160 companies, predominantly from the United States, employed seventeen thousand workers in maquiladora factories.<sup>63</sup> Over the ensuing half-century, the maquiladora industry in Tijuana grew to comprise over 570 foreign-owned manufacturing plants that employ upwards of one hundred

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56. *See id.* (acknowledging United States labor shortages caused by World War II).

57. *See id.* (discussing Bracero Program).

58. *Id.* (providing estimate for Bracero Program participants). Additionally, many Braceros brought their families along with them to settle in Tijuana and other border cities to remain closer during their time in the United States. *Id.* (expounding additional factor for Tijuana region’s growth).

59. Hernandez, *supra* note 54 (noting Bracero Program’s impact on population growth).

60. *See Depression, War, and Civil Rights*, HIST., ART & ARCHIVES, <https://history.house.gov/Exhibitions-and-Publications/HAIC/Historical-Essays/Separate-Interests/Depression-War-Civil-Rights/> (last visited Jan. 21, 2021) (describing United States Immigration and Naturalization Service efforts to deport Mexican laborers).

61. Anna-Stina Ericson, *An Analysis of Mexico’s Border Industrialization Program*, 93 MONTHLY LAB. REV. 33, 33 (1970) (recounting maquiladora industry origins).

62. *Id.* (noting incentives for foreign companies to manufacture in Mexico). In addition to favorable tax benefits, the region’s large low-wage labor pool attracted foreign investors. *Id.* (indicating additional incentives for foreign businesses).

63. *Id.* (explaining expansive nature of program).

thousand workers.<sup>64</sup> The job opportunities created by these industries have attracted hundreds of thousands of migrants to Tijuana in the last thirty years, resulting in a population of over two million.<sup>65</sup>

One of the initial effects of Tijuana's dramatic growth was the formation of unplanned neighborhoods on the rugged outskirts of the city.<sup>66</sup> These impoverished communities lacked access to potable water, sewage systems, and electricity.<sup>67</sup> Simultaneously, rapid population growth in the city surpassed existing sewage system capabilities and resulted in early wastewater system failures.<sup>68</sup> In response to the growing crisis, the United States and Mexico constructed a pipeline to carry wastewater from Tijuana to the Pacific in 1938; however, the system "functioned adequately for [only] several years."<sup>69</sup> As a result, between the 1930s and 1960s, the two countries constructed wastewater channels and pumping stations along the border to divert wastewater to the Pacific.<sup>70</sup> By 1965, the IWBC approved an emergency connection between Tijuana and San Diego's water treatment facility at Point Loma.<sup>71</sup> Notwithstanding these efforts, by the late 1980s, San Diego officials proclaimed that the Tijuana River was "the most polluted [river] in the United States."<sup>72</sup>

64. *Maquiladoras/Twin Plants*, *supra* note 52 (detailing number of maquiladoras and number of people they employ).

65. Kevan Q. Malone, *San Diego and Tijuana's Shared Sewage Problem has a Long History*, WASH. POST (June 2, 2020), <https://www.washingtonpost.com/outlook/2020/06/02/san-diego-tijuanas-shared-sewage-problem-has-long-history/> (providing current population figure and factors contributing to Tijuana's growth).

66. Hernandez, *supra* note 54, at 3 (describing rapid growth of lower-class communities). Housing was "limited" for middle to lower class migrants. *Id.* (discussing complications of migrating to Tijuana).

67. *Id.* (noting lack of public utilities). Through the 1980s, roughly half of Tijuana's population was still in need of municipal services. *Id.* (highlighting that despite success of maquiladora program, Tijuana remained largely impoverished).

68. See John H. Minan, *Recent Developments in Wastewater Management in the Coastal Region at the United States-Mexico Border*, 3 SAN DIEGO INT'L L.J. 51, 59 (2002) (noting Tijuana's sewage system in 1928 was capable of servicing only five hundred inhabitants).

69. Minute No. 222: Emergency Connection of the Sewage System of the City of Tijuana, Baja California to the Metropolitan Sewage System of the City of San Diego, California, Mex.-U.S., Dec. 20, 1965 [hereinafter Minute 222], <https://www.ibwc.gov/Files/Minutes/Min222.pdf> (illustrating pace at which population outgrew infrastructure).

70. See *Emergency Connection to Point Loma*, INT'L BOUNDARY & WATER COMM'N, [https://www.ibwc.gov/Mission\\_Operations/background.html](https://www.ibwc.gov/Mission_Operations/background.html) (last visited Jan. 20, 2021) (noting early pollution intervention).

71. *Id.* (describing international solution to keep sewage from overflowing).

72. William Branigan, *Pollution Under Scrutiny at U.S.-Mexico Border*, WASH. POST (Oct. 24, 1989), <https://www.washingtonpost.com/archive/politics/1989/>

### III. WASTEWATER POLLUTION IN THE TIJUANA RIVER VALLEY

Despite a complex wastewater diversion and treatment system, an estimated twenty-five to forty million gallons of untreated wastewater gushes out of the system daily.<sup>73</sup> Current wastewater infrastructure diverts dry-weather river flow, but the system succumbs when it rains.<sup>74</sup> Further, ongoing attempts to construct new wastewater treatment facilities in Mexico have largely been unsuccessful, and massive amounts of pollution are discharged to the Pacific Ocean daily.<sup>75</sup>

#### A. Existing Tijuana River Valley Wastewater Infrastructure Capabilities and Limitations

The wastewater infrastructure at the border diverts dry-weather Tijuana River water flow before it crosses the international border.<sup>76</sup> Before the river crosses the border, it enters the diversion system, where Pump Station CILA (PB-CILA) transfers river flow to the International Collector.<sup>77</sup> From the International Collector, water is either transported to the SBIWTP or conveyed by a “dual-pump station” to the SABTP in Mexico.<sup>78</sup> The river flow diverted towards the SABTP is untreated wastewater, the majority of which is discharged to the Pacific Ocean without treatment.<sup>79</sup> Water treated at the SBIWTP is also discharged to the Pacific Ocean through the South Bay Ocean Outfall (SBOO) — an eleven-foot-diameter pipe that extends 3.5 miles offshore along the ocean floor.<sup>80</sup>

Currently, the diversion system infrastructure can sustain a flow capacity of twenty-nine MGD, which is 1,300 liters per sec-

10/24/pollution-under-scrutiny-at-us-mexican-border/96c162a4-07fe-471b-b938-2bad0ab87005/ (emphasizing scope of pollution crisis).

73. See Stahl, *supra* note 6 (discussing regular occurrence of transboundary flows).

74. For a discussion of the catastrophic 2017 transboundary flow event, see *infra* notes 122-34 and accompanying text.

75. For a discussion of an attempt to construct a new wastewater treatment plant in Mexico, see *infra* notes 102-17 and accompanying text.

76. See DIVERSION STUDY, *supra* note 6, at ES-1 (introducing purpose of Tijuana River diversion infrastructure).

77. *Id.* at ES-2 (describing water route). The International Collector uses gravity to move water that enters it. *Id.* (highlighting physical characteristic of collector).

78. *Id.* (expanding upon diverted water’s path).

79. *Id.* (suggesting most of dry-weather river flow is not treated before dumping).

80. See CNTY. OF SAN DIEGO, TIJUANA RIVER VALLEY NEEDS AND OPPORTUNITIES ASSESSMENT 19 (2020) [hereinafter TIJUANA RIVER ASSESSMENT], <https://www.sdparks.org/content/dam/sdparks/en/pdf/Resource-Management/NOA%20Final%20Report.pdf> (detailing SBOO).

ond.<sup>81</sup> According to existing procedures, however, the diversion system shuts down when the flowrate surpasses twenty-three MGD.<sup>82</sup> This occurs due to fears that sediment or other solid wastes will damage the pumps.<sup>83</sup> During these purported wet-weather events, the river flows into the United States along a portion of water known as the “flood control conveyance.”<sup>84</sup> At the flood control conveyance, the river is a .9-mile-long channel lined with concrete.<sup>85</sup> Once water crosses into the flood control conveyance, there are no wastewater treatment facilities to remove pollution before it enters the Pacific Ocean.<sup>86</sup> Further, transboundary flows occur during dry weather when trash or other debris cause blockages and aging components break.<sup>87</sup> In general, although wet-weather events necessitate shutting down PB-CILA, restarting the system can take up to several months.<sup>88</sup> Throughout this time, transboundary flows of polluted water enter the United States and bypass any treatment before they enter the Pacific Ocean.<sup>89</sup>

Crucial elements of the diversion system are canyon water collection and drain sites.<sup>90</sup> The canyon collectors utilize the surrounding topography to channel dry-weather wastewater runoff north to the SBIWTP or pump runoff south to the SABTP.<sup>91</sup> In the course of wet-weather events, several of the canyon collectors direct water flow to the Tijuana River instead of to the treatment plants

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81. See DIVERSION STUDY, *supra* note 6, at ES-4 (describing current maximum capacity).

82. *Id.* (providing system operating protocol). Heavy rain can result in river flows exceeding one billion gallons per day. *Id.* (highlighting maximum volume of water flow in river).

83. *Id.* (noting diversion system’s capacity limits).

84. See Complaint for Plaintiffs ¶ 51, *Imperial Beach v. Int’l Boundary & Water Comm’n*, 356 F. Supp. 3d 1006 (S.D. Cal. 2018) (No. 18CV0457 JM JMA), 2018 WL 1161623 (delineating river channelization after crossing border).

85. *Id.* (discussing length of river channel).

86. *Id.* ¶ 52 (emphasizing lack of options available to appropriately discharge wastewater flow).

87. See *id.* ¶ 50-56 (listing additional reasons for transboundary flows).

88. See DIVERSION STUDY, *supra* note 6, at 2 (describing timeframe for getting system operating after shutdown).

89. *Id.* (detailing what occurs during PB-CILA shutdown).

90. See INT’L BOUNDARY & WATER COMM’N, BINATIONAL WATER QUALITY STUDY OF THE TIJUANA RIVER AND ADJACENT CANYONS AND DRAINS 15 (2020) [hereinafter 2020 STUDY], [https://ibwc.gov/Files/Min320\\_Binational\\_Report\\_TJ\\_River\\_Water\\_shed\\_with\\_Appendix090120.pdf](https://ibwc.gov/Files/Min320_Binational_Report_TJ_River_Water_shed_with_Appendix090120.pdf) (introducing canyon collectors).

91. See TIJUANA RIVER ASSESSMENT, *supra* note 80, at 17 (explaining canyon collector function). In the canyons, dry-weather events are associated with wastewater infrastructure failures in Tijuana’s sewage system. *Id.* (connecting dry-weather water collection with infrastructure problems).

due to insufficient pumping capability.<sup>92</sup> Under the current infrastructure, untreated wastewater and sewage circumvent the diversion system and treatment plants 138 days in an average year.<sup>93</sup>

The IBWC shares operations and maintenance of the border water diversion system with local and federal agencies.<sup>94</sup> The roles of the individuals maintaining the system vary.<sup>95</sup> For instance, United States Border Patrol agents regularly must open the gates under the border wall to prevent clogs caused by trash and debris.<sup>96</sup> Individuals with Tijuana's public works division — the Comisión Estatal de Servicios Públicos de Tijuana (CESPT) — are required to rake sludge out of drain grates by hand.<sup>97</sup> Long term contact with this environment causes serious health risks to the CESPT and Border Patrol personnel, including exposure to flesh-eating bacteria, rashes, and digestive tract issues.<sup>98</sup> Additionally, according to reports from 2019, the CESPT is extremely understaffed for the role it must play to keep the system operating.<sup>99</sup> For the 148 sites the CESPT operates, there were only fourteen dedicated mechanics and electricians.<sup>100</sup> Despite the efforts of these individuals, budget and personnel constraints made proper system maintenance untenable.<sup>101</sup>

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92. *Id.* (illustrating canyon collector functions during rainy weather). The six primary canyon sites and their flow diversion capacities are: Stewart's Drain (1.67 MGD), Silva Drain (.33 MGD), Canyon del Sol (.67 MGD), Smuggler's Gulch (4.67 MGD), Goat Canyon (2.33 MGD), and Yogurt Canyon (drains into Tijuana River estuary). 2020 STUDY, *supra* note 90, at 15-19 (noting canyon characteristics and flow capacities).

93. *See* DIVERSION STUDY, *supra* note 6, at 23 (detailing average transboundary flow occurrences). The study determined that approximately two-thirds of the transboundary flows were due to wet-weather events, whereas one-third were due to system failures. *Id.* (explaining transboundary flow causation).

94. *See* Stahl, *supra* note 6 (discussing various occupations assisting with upkeep).

95. *Id.* (noting various tasks by system).

96. *Id.* (noting tasks of Border Patrol). The Border Patrol agents must open the gates to keep solid waste like plastic bottles, household trash, and tires from clogging the system and flooding the areas south of the border wall. *Id.* (expounding reason for grate opening). The solid waste comes in, partly, because of unplanned residential developments in the canyons surrounding Tijuana, which lack proper waste disposal services. *See id.* (providing causation).

97. *Id.* (noting different roles played by system maintainers).

98. *See* Stahl, *supra* note 6 (describing health consequences for persons maintaining system).

99. *See* DIVERSION STUDY, *supra* note 6, at ES-5 (introducing CESPT staffing issues).

100. *Id.* (supplying personnel figures assigned to system maintenance).

101. *Id.* (highlighting fiscal and staffing constraints).

## B. The “Bajagua Project”

In 2000, Congress passed the Tijuana River Valley Estuary and Beach Sewage Cleanup Act (Tijuana River Act) and appropriated funds for the construction of a secondary wastewater treatment facility in Mexico to supplement the SBIWTP.<sup>102</sup> Congress required the USIBWC to “enter into a multiyear fee-for-services contract with the owner of the Mexican facility and negotiate a new treaty minute to implement the [Tijuana River] Act’s provisions.”<sup>103</sup> Around the time Congress passed the Tijuana River Act, environmentalist groups sued the IBWC for violating the CWA by discharging partially treated wastewater into the Pacific.<sup>104</sup> As a result, the United States District Court for the Southern District of California directed that the SBIWTP meet CWA effluent limitations by September 30, 2008.<sup>105</sup>

By February 2004, the IBWC passed Minute 311, which established preliminary contractual obligations for the secondary treatment facility in Mexico proposed by Congress.<sup>106</sup> Through Minute 311, the IBWC awarded the contract for building and operating the Mexico treatment facility to privately owned Bajagua, LLC, and the initiative became known as the “Bajagua Project.”<sup>107</sup> Under the Bajagua Project, wastewater diversion infrastructure would pump up to twenty-five MGD to the SBIWTP for primary treatment.<sup>108</sup> The partially treated wastewater would then be pumped uphill to the new Bajagua wastewater treatment plant.<sup>109</sup> From there, the

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102. See U.S. GOV’T ACCOUNTABILITY OFF., GAO-08-595R, INTERNATIONAL BOUNDARY AND WATER COMMISSION: TWO ALTERNATIVES FOR IMPROVING WASTEWATER TREATMENT AT THE UNITED STATES-MEXICO BORDER 13 (2008) [hereinafter GAO, TWO ALTERNATIVES], <https://www.gao.gov/products/GAO-08-595R> (discussing Tijuana River Act).

103. *Id.* (detailing purposes of Tijuana River Act).

104. *Id.* (analyzing federal lawsuit).

105. *Id.* (observing court order).

106. *Id.* (noting IBWC Treaty to implement Tijuana River Act); see Minute 311 of the International Boundary and Water Commission: Recommendations for Secondary Treatment in Mexico of the Sewage Emanating from the Tijuana River Area in Baja California, Mexico, with Related Letter, Mex.-U.S., Feb. 20, 2004 TIAS 04-305.1 [hereinafter Minute 311], <https://www.ibwc.gov/Files/Minutes/Min311.pdf> (introducing Minute 311).

107. See GAO, TWO ALTERNATIVES, *supra* note 102, at 13, 61 (assigning government contract to Bajagua). Additionally, the IBWC initiated the Bajagua Project because it was less expensive than updating the SBIWTP, which a federal court instructed must update its facilities to become compliant with the CWA by 2008. *Id.* (discussing one impetus for choosing Bajagua Project).

108. See *id.* at 14 (providing illustrative graphic of Bajagua Project’s operation).

109. See *id.* (detailing project logistics).

Bajagua plant planners suggested that fifty-nine MGD of wastewater would receive secondary treatment and then flow downhill back to the SBIWTP and the SBOO.<sup>110</sup> By 2007, Bajagua Project leadership reported to the USIBWC that it would not meet the September 30, 2008 deadline, leading Congress to suspend the project.<sup>111</sup> Accordingly, the USIBWC reconsidered upgrading the SBIWTP to accommodate secondary treatment capabilities or following through with the Bajagua Project.<sup>112</sup>

In the 2008 report that Congress requested, the United States Government Accountability Office (GAO) examined the pros and cons of either course of action.<sup>113</sup> The GAO found that the Bajagua Project would cost United States taxpayers \$539 million over twenty years.<sup>114</sup> Additionally, the GAO report suggested that the Bajagua Project provided a better long-term treatment capacity for Tijuana's growing population.<sup>115</sup> In contrast, upgrades to the SBIWTP would cost \$101.5 million, in addition to a twenty-year operating and maintenance cost estimate of \$331 million.<sup>116</sup> By May of 2008, Congress abandoned the Bajagua Project in favor of improving the SBIWTP, with the United States government allocating ninety-four million dollars to the improvements.<sup>117</sup>

The IBWC upgraded the SBIWTP by installing an "activated sludge treatment component" to supplement the primary treatment capabilities of the plant.<sup>118</sup> The activated sludge in the secondary treatment utilizes aeration and "billions of bacteria" to break down organic particles in partially treated wastewater.<sup>119</sup> The activated sludge then sterilizes the water with chlorine.<sup>120</sup> In late 2010, the SBIWTP completed the secondary treatment infrastructure con-

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110. *Id.* (diagramming water flow between wastewater treatment plants).

111. *Id.* at 13 (noting Bajagua Project difficulties).

112. GAO, TWO ALTERNATIVES, *supra* note 102, at 13-14 (discussing USIBWC decision).

113. *See generally id.* at 1-2 (noting purpose of GAO study).

114. *Id.* at 30 (providing Bajagua Project cost estimate).

115. *See id.* at 3 (explaining Bajagua Project would enable additional treatment for thirty-four MGD of wastewater).

116. *Id.* (detailing SBIWTP upgrade cost).

117. Rob Davis, *Bajagua Project Killed*, VOICE OF SAN DIEGO (May 16, 2008), <https://www.voiceofsandiego.org/topics/science-environment/bajagua-project-killed/> (announcing Bajagua Project cancellation).

118. *San Diego Region — International Wastewater Treatment Plant*, CAL. WATERBOARDS (Mar. 9, 2018), [https://www.waterboards.ca.gov/sandiego/water\\_is\\_sues/programs/iwtp/](https://www.waterboards.ca.gov/sandiego/water_is_sues/programs/iwtp/) (describing SBIWTP upgrades).

119. U.S. ENV'T PROT. AGENCY, 833-F-98-002, HOW WASTEWATER TREATMENT WORKS... THE BASICS (1998), <https://www3.epa.gov/npdes/pubs/bastre.pdf> (providing overview of secondary treatment).

120. *Id.* (detailing water sterilization process).

struction, and by August 1, 2014, the plant began operating according to its NPDES permit effluent limitations.<sup>121</sup>

### C. 2017 Sewage Spill

In February 2017, reports of a foul stench along the TRV and on San Diego beaches prompted concerns of a massive transboundary pollution event.<sup>122</sup> Initial estimates suggested that 143 million gallons of wastewater from Mexico had spilled into the Pacific Ocean.<sup>123</sup> Beach closures prompted by the sewage spill lasted for weeks, and reporters touted it as the “worst spill . . . in over a decade.”<sup>124</sup> Subsequently, the IBWC confirmed the spill in a report released April 3, 2017.<sup>125</sup>

In its report, the IBWC linked the spill to CESPT repairs of a failed wastewater collector and multiple collapsed pipe sections in Tijuana’s sewer system.<sup>126</sup> During the repairs, the CESPT diverted the wastewater usually carried by the collapsed pipe into the Tijuana River.<sup>127</sup> According to initial CESPT reports, the sewer bypasses were in place between February 6, 2017, and February 23, 2017.<sup>128</sup> Based on this timeline, and the IBWC’s estimated water flow rate of three hundred liters per second, the IBWC notified California State officials that the spill totaled 143 million gallons.<sup>129</sup>

In an independent report by the EPA, the sewage spill total was even greater.<sup>130</sup> As opposed to the start date utilized by the IBWC, the EPA calculated its estimates dating to January 1, 2017, when the

121. CAL. REG’L WATER QUALITY CONTROL BD. SAN DIEGO REGION, NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT AND WASTE DISCHARGE REQUIREMENTS FOR THE DISCHARGE FROM THE SOUTH BAY INTERNATIONAL WASTEWATER TREATMENT PLANT TO THE PACIFIC OCEAN VIA THE SOUTH BAY OCEAN OUTFALL, Order No. R9-2014-0009 (2014), [https://www.waterboards.ca.gov/sandiego/board\\_decisions/adopted\\_orders/2014/R9-2014-0009\\_Amended.pdf](https://www.waterboards.ca.gov/sandiego/board_decisions/adopted_orders/2014/R9-2014-0009_Amended.pdf) (providing date NPDES entered force).

122. INT’L BOUNDARY & WATER COMM’N, REPORT OF TRANSBOUNDARY BYPASS FLOWS INTO THE TIJUANA RIVER 3 (2017) [hereinafter IBWC, 2017 REPORT], [https://www.ibwc.gov/Files/Report\\_Trans\\_Bypass\\_Flows\\_Tijuana\\_033117.pdf](https://www.ibwc.gov/Files/Report_Trans_Bypass_Flows_Tijuana_033117.pdf) (connecting foul stench to discovery of 2017 event).

123. Azadeh Ansari, *A Massive Mexico-US Raw Sewage Spill is Under Investigation*, CNN (Mar. 6, 2017), <https://www.cnn.com/2017/03/06/americas/mexico-us-sewage-spill/index.html> (detailing spill).

124. *Id.* (describing impact on local beaches).

125. IBWC, 2017 REPORT, *supra* note 122 (introducing findings).

126. *Id.* (tracing spill origins).

127. *Id.* (expounding that CESPT did not notify USIBWC of repairs beforehand).

128. *Id.* (noting duration sewer water was diverted into river).

129. *Id.* (explaining how USIBWC calculated spill volume).

130. IBWC, 2017 REPORT, *supra* note 122, at 7 (discussing EPA estimate).

CESPT reported that a wastewater collector in Tijuana failed.<sup>131</sup> According to the EPA, the correct volume of wastewater that entered the Tijuana River was approximately 230 million gallons.<sup>132</sup> Additionally, water flow data that the SBIWTP collected suggested that 256 million gallons of wastewater were not diverted to its plant for treatment during the same time frame.<sup>133</sup> Accordingly, and as the discrepancies in reporting suggest, the actual amount of sewage that entered the Tijuana River is unknown.<sup>134</sup>

#### D. Clean Water Act Lawsuits

Following the 2017 spill, various municipalities, the State of California, and environmentalist groups commenced three similar lawsuits against the SBIWTP and the IWBC alleging violations of the CWA.<sup>135</sup> For instance, in *Imperial Beach v. International Boundary & Water Commission*, the City of Imperial Beach alleged that the SBIWTP violated the CWA by discharging wastewater — or permitting its escape — through the concrete flood control conveyance portion of the Tijuana River in violation of the SBIWTP's NPDES permit.<sup>136</sup> Likewise, the complaint asserted that the canyon collectors unlawfully discharged pollutants into the Tijuana River during overflow events because the wastewater bypassed treatment.<sup>137</sup> As such, the City of Imperial Beach argued that every day where wastewater bypassed the diversion system, whether because of mainte-

131. *Id.* at 16 (noting reason for discrepancy between agency reports).

132. *Id.* (providing EPA estimate). The IBWC report refuted this figure and stated it should not have been reported without further investigation. *Id.* (noting IWBC questioned EPA estimate).

133. *Id.* at 25 (adding additional data point).

134. *See id.* (recognizing difficulty in determining actual figure).

135. *See* Complaint for Plaintiff, *supra* note 84, ¶1 (commencing action under CWA and Resource Conservation and Recovery Act (RCRA)); *see, e.g.*, Complaint for Declaratory and Injunctive Relief ¶1, California ex. rel. Reg'l Water Quality Control Bd. v. Int'l Boundary & Water Comm'n, 2018 WL 6445929, \*1 (S.D. Cal. Dec. 10, 2018), (No. 18CV2050 JM JMA), 2018 WL 4212418 (seeking injunctive relief against IWBC); *see also* Memorandum of Points and Authorities in Support of Partial Motion to Dismiss for Defendant, *Surfrider Found. v. Int'l Boundary & Water Comm'n*, 2018 WL 6504154 (S.D. Cal. Dec. 11, 2018) (No. 18CV1621 JM JMA), 2018 WL 8786840 (bringing action under CWA).

136. Complaint for Plaintiff, *supra* note 84, ¶¶ 77-99 (stating cause of action). The City alleged that the "flood control conveyance [was] a 'point source' [of pollution] within the meaning of the [CWA]." *Id.* ¶ 81 (alleging flood control conveyances fall under CWA jurisdiction). According to the complaint, the SBIWTP's NPDES permit only applied to SBOO discharge after treatment completion and to the canyon collectors. *Id.* ¶ 47 (noting facility's NPDES permit does not cover other physical structures of plant).

137. *See id.* ¶¶ 91-96 (stating overflow from canyon collectors bypassing SBIWTP into river violated CWA).

nance or rainfall, the IBWC violated the CWA, thus subjecting it to civil penalties.<sup>138</sup>

On June 25, 2020, the parties from all three lawsuits agreed to a Joint Motion to Stay the case.<sup>139</sup> In light of an EPA announcement that it was launching a “one-year public process to evaluate the technical feasibility of various potential projects” in the TRV, the parties sought a twelve-month stay of proceedings.<sup>140</sup> During the stay, the USIBWC agreed to allocate two million dollars to implement temporary measures addressing transboundary wastewater pollution.<sup>141</sup>

#### E. 2020 Report on Tijuana River Pollution

In response to recommendations in the IBWC’s 2017 report, both sections of the IBWC conducted a sampling of sediment and water in the TRV between December 2018 and November 2019.<sup>142</sup> The study examined water and sediment at eight sites along the San Diego-Tijuana border and tested for 267 parameters at these locations.<sup>143</sup> To capture the most accurate results, the IBWC sampled the sites after rainfall and during dry periods.<sup>144</sup> Although the study did not detect 131 of the 267 parameters tested for at the sites, the study confirmed that the detected 136 parameters presented evidence of unprocessed wastewater.<sup>145</sup>

The study confirmed that pollutants at the testing locations included metals, plastic waste, and high levels of bacteria.<sup>146</sup> The IBWC was concerned with the high levels of fecal bacteria because

138. *Id.* ¶¶ 86, 97-98 (seeking violations for every transboundary flow occurrence).

139. *See* Joint Motion to Stay Case for the Parties ¶ 1, California ex. rel. Reg’l Water Quality Control Bd. v. Int’l Boundary & Water Comm’n, Nos. 3:18-cv-02050-JM-LL, 3:18-cv-01621-JM-LL, 3:18-cv-00457-JM-LL (S.D. Cal. June 25, 2020), 2020 WL 4550700 (introducing parties’ motion to stay).

140. *Id.* ¶ 7 (noting reason parties sought stay). The stated purpose of the EPA process was to utilize funding from the recently enacted USMCA to address TRV pollution. *Id.* (expanding explanation for stay). For a further discussion of USMCA funding, see *infra* notes 152-54 and accompanying text.

141. *Id.* ¶ 10 (discussing agreement to implement short-term projects).

142. 2020 STUDY, *supra* note 90, at 7 (offering impetus for conducting study).

143. *Id.* (presenting scope of study). The sites tested included: the Tijuana and Alamar Rivers, Stewart’s Drain, Silva Drain, Canyon del Sol, Smuggler’s Gulch, Goat Canyon, and Yogurt Canyon. *Id.* (identifying testing locations). “Parameters” include different compounds, organic matter, elements, heavy metals, pathogens, and pesticides. *See id.* at App. C (listing tested parameters).

144. *Id.* at 7 (mentioning schedule for site testing corresponds with wet and dry seasons).

145. *See id.* at 7-8 (concluding many parameters found at high levels).

146. 2020 STUDY, *supra* note 90, at 8-9 (presenting pollutant indicators). The study also found high levels of ammonia, oils, fats, phosphorous, and nitrates that

it could bypass treatment plants during heavy water flows.<sup>147</sup> Among the bacteria present in the river and drainage canyons were “Fecal Coliforms, Enterococci, and E. Coli,” which the IBWC credited to failures in Tijuana’s sewage system.<sup>148</sup>

Furthermore, the IBWC attributed the presence of heavy metals to alloy manufacturing industries in Tijuana.<sup>149</sup> The heavy metals discovered in the study included zinc, copper, and nickel.<sup>150</sup> Other parameters in the samples that suggested improper industrial waste disposal included Bis (2-ethylhexyl) Phthalate, or DEHP, which is common to plastic or polymer products.<sup>151</sup>

#### IV. PROPOSED SOLUTIONS TO TRANSBOUNDARY WATER POLLUTION IN THE TIJUANA RIVER VALLEY

On July 1, 2020, the USMCA entered into force, replacing the decades-old North American Free Trade Agreement.<sup>152</sup> Under the USMCA’s Implementation Act, Congress delegated authority to the Administrator of the EPA to “coordinat[e] with eligible public entities, [to] carry out the planning, design, construction, and operation and maintenance of high priority treatment works in the covered area to treat wastewater (including stormwater), nonpoint sources of pollution . . . from international transboundary water flows originating in Mexico.”<sup>153</sup> To finance treatment works under

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exceeded water quality standards for Mexico and the United States. *Id.* at 8 (noting other unacceptable pollutant levels in water).

147. *See id.* at 8 (expressing concern over dangerous bacterial pathogens ending up in Pacific).

148. *Id.* (describing likely source of bacteria). To support this hypothesis, the IBWC compared the bacteria present in the water samples and sediment to bacteria historically found in waters before treatment at the SBIWTP. *Id.* (presenting additional evidence).

149. *Id.* at 8 (suggesting metals linked to plating industries).

150. *Id.* (listing common plating industry metals found).

151. 2020 STUDY, *supra* note 90, at 9-10 (highlighting additional industry waste). The study also notes that DEHP can leak from solid plastic waste disposed into waters; thus, the presence of DEHP does not immediately implicate plastic manufacturers. *Id.* at 54 (providing causation for DEHP in water).

152. *See* Protocol Replacing the North American Free Trade Agreement with the Agreement Between the United States of America, the United Mexican States, and Canada, Can.-Mex.-U.S., July 1, 2020 [hereinafter USMCA], <https://ustr.gov/trade-agreements/free-trade-agreements/united-states-mexico-canada-agreement> (providing USMCA overview).

153. 19 U.S.C. § 4731(a) (2020) (appointing EPA to lead border pollution problem). The USMCA Implementation Act defines “treatment works” as:

[A]ny devices and systems used in the storage, treatment, recycling, and reclamation of municipal sewage or industrial wastes of a liquid nature . . . including intercepting sewers, outfall sewers, sewage collection systems, pumping, power, and other equipment, and their appurtenances; extensions, improvements, remodeling, additions . . . and acquisition of

the USMCA, Congress appropriated three hundred million dollars in funding to construct “high priority wastewater” infrastructure within the TRV.<sup>154</sup>

#### A. The Environmental Protection Agency’s Proposed Solutions

After the USMCA delegated authority to the EPA to address TRV pollution, the EPA devised and proposed ten wastewater infrastructure projects in the United States and Mexico that encompass one or more of three broad categories of pollution interventions: “conveyance,” “treatment,” and “source control.”<sup>155</sup> The EPA sorted the ten solutions into five general classes: “diverting and treating river water,” “treating sewage,” “upgrading sewage collection in Mexico,” “targeting trash and sediment pollution,” and “sediment and trash source control.”<sup>156</sup> Following a technical analysis and public comment period, the EPA will group one or more of the ten projects into “alternatives,” which will be tested against EPA-

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the land that will be an integral part of the treatment process . . . or will be used for ultimate disposal of residues resulting from such treatment . . . .

33 U.S.C. § 1292(2)(A) (defining treatment works). The Implementation Act defined “eligible public entities” as:

[T]he United States Section of the International Boundary and Water Commission; the Corps of Engineers; the North American Development Bank; the Department of State; any other appropriate Federal agency; the State of California; and any of the following entities with jurisdiction over any part of the covered area: [including] [a] local government[,] [a]n Indian Tribe[,] [a] regional water board[,] [a] public wastewater utility.

19 U.S.C. 4731 (c)(2)(A)-(G) (listing eligible public entities).

154. USMCA Supplemental Appropriations Act, Pub. L. No. 116-113, 134 STAT. 100 (2020) (appropriating funds for “construction of high priority wastewater facilities in the area of the United States-Mexico Border”).

155. *Tijuana River Watershed Technical Evaluation of Infrastructure Solutions*, U.S. ENV’T PROT. AGENCY, <https://www.epa.gov/sustainable-water-infrastructure/tijuana-river-watershed-technical-evaluation-infrastructure> (last visited May 10, 2021) (discussing project types). Conveyance interventions “evaluate the construction or repair of the infrastructure . . . that convey wastewater to treatment and disposal facilities.” *Id.* (providing conveyance project examples). Treatment interventions “increase facility capacity to treat wastewater, remove pollutants, and put clean water back into waterways and waterbodies.” *Id.* (defining “treatment” projects). Source Control “projects intervene at the source of contamination to stop or reduce pollutants before reaching a waterbody or treatment facility.” *Id.* (describing source control projects).

156. U.S. Env’t Prot. Agency, *USMCA Mitigation of Contaminated Transboundary Flows Project Public Scoping Meeting* at 19:12 (Apr. 20, 2021) [hereinafter *Scoping Meeting*], <https://www.epa.gov/sustainable-water-infrastructure/tijuana-river-watershed-nepa-public-scoping> (introducing EPA solutions).

established criteria to ascertain the “preferred alternative” by June 2021.<sup>157</sup>

### 1. *Conveying and Treating Tijuana River Water*

Project 1 focuses on treating water in the Tijuana River, and requires constructing a novel “diversion system” along the main river channel in the United States and building a new wastewater treatment facility adjacent to SBIWTP with the capacity to treat between thirty-five MGD to 163 MGD.<sup>158</sup> Project 1 expects to reduce Biochemical Oxygen Demand (BOD) indicator outflow via the main Tijuana River channel by eighty-five percent annually if the new plant treats 163 MGD, and will reduce BOD pollution impacts to the Tijuana River estuary and surrounding beaches during dry or rainy weather.<sup>159</sup> In addition to reducing pollution in San Diego beaches and the Tijuana River estuary, Project 1 should significantly reduce health risks associated with BOD to United States Navy personnel who train in the Pacific Ocean.<sup>160</sup>

Project 2 focuses on updating and expanding current wastewater diversion infrastructure in Mexico and constructing a new primary treatment facility in the United States.<sup>161</sup> Under Project 2, the EPA would upgrade PB-CILA to pump thirty-five MGD to a new

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157. *Id.* (describing how EPA will develop final proposed project); Audiotape: *USMCA Informational Meeting*, held by U.S. Env’t Prot. Agency (Feb. 26, 2021) (on file with author) (discussing proposed EPA timeline).

158. *Project #1: New Tijuana River Diversion System in the U.S. and Treatment in the U.S.*, U.S. ENV’T PROT. AGENCY [hereinafter *Project 1*], [https://www.epa.gov/sites/default/files/2021-04/documents/project\\_1\\_overview.pdf](https://www.epa.gov/sites/default/files/2021-04/documents/project_1_overview.pdf) (last visited May 10, 2021) (introducing Project 1). 163 MGD is the maximum daily treatment capacity the EPA is evaluating for the new wastewater treatment plant. *Id.* (noting other treatment capacity options under analysis are thirty-five MGD and 100 MGD).

159. *Id.* (discussing 163 MGD treatment capacity benefits). BOD “measures the amount of oxygen that microorganisms consume while decomposing organic matter[.]” U.S. ENV’T PROT. AGENCY, EPA-842-B-06-003, VOLUNTEER ESTUARY MONITORING MANUAL CHAPTER 9: DISSOLVED OXYGEN AND BIOCHEMICAL OXYGEN DEMAND 9-14 (2d ed. 2006), [https://www.epa.gov/sites/production/files/2015-09/documents/2009\\_03\\_13\\_estuaries\\_monitor\\_chap9.pdf](https://www.epa.gov/sites/production/files/2015-09/documents/2009_03_13_estuaries_monitor_chap9.pdf) (explaining BOD). BOD is an indicator that wastewater has entered navigable water. *See id.* (finding BOD indicates polluted water). It also points to the presence of human waste. *See id.* (noting high BOD levels kill aquatic organisms due to lack of available oxygen).

160. *Project 1, supra* note 158 (noting additional benefit). The EPA reports, however, that Project 1, absent supporting projects, will not improve environmental working conditions for Border Patrol personnel operating in the area. *See id.* (conceding environmental hazards to Border Patrol agents not improved under Project 1).

161. *Project #2: Expand and Upgrade Tijuana River Diversion System in Mexico and Provide Treatment in the U.S.*, U.S. ENV’T PROT. AGENCY, [https://www.epa.gov/sites/default/files/2021-04/documents/project\\_2\\_overview.pdf](https://www.epa.gov/sites/default/files/2021-04/documents/project_2_overview.pdf) (last visited May 10, 2021) (introducing Project 2).

advanced primary treatment facility in the United States, which will eliminate wastewater discharge to San Antonio de los Buenos (SAB) Creek and the Pacific Ocean.<sup>162</sup> Furthermore, Project 2 should reduce transboundary sewage flows during dry weather by fifty-five percent in the main Tijuana River channel, and twenty-seven percent in SAB Creek.<sup>163</sup> As such, Project 2 promises decreased direct wastewater discharges into the Pacific Ocean because less water will be diverted to SAB Creek.<sup>164</sup>

In contrast, Project 7 will enhance existing wastewater conveyance systems in Mexico by directing water treated in Mexico away from the Tijuana River and into Mexico's Rodriguez Reservoir for potential reclamation.<sup>165</sup> Because reduced water flow will enter the main river channel, less water will need to be diverted and treated, which should decrease the regularity of transboundary flows.<sup>166</sup> A prospective variant of Project 7 aims to construct pipelines from existing wastewater treatment facilities in Mexico to carry wastewater directly to the SBOO, and then to the Pacific Ocean.<sup>167</sup> Notwithstanding the benefits of potentially recycling scarce water, Project 7 will not affect water pollution that comes from the canyons.<sup>168</sup>

Likewise, the EPA designed Project 5 to improve the condition of existing wastewater conveyance systems in the TRV.<sup>169</sup> Project 5 calls for upgrading sewage pipelines and expanding service cover-

162. *Id.* (detailing Project 2 proposal).

163. *Id.* (noting significant public health and water quality benefits for both United States and Mexico).

164. *See id.* (projecting "flow rate reduction" to SAB Creek by forty-seven percent). Minimizing direct discharges to SAB Creek will improve Pacific Ocean and San Diego water quality by reducing BOD, which travels north into United States territorial waters by ocean currents. *Id.* (discussing expected health and environmental benefits).

165. *Project #7: Divert or Reuse Treated Wastewater from Existing Wastewater Treatment Plants in Mexico to Reduce Flows into the Tijuana River*, U.S. ENV'T PROT. AGENCY, [https://www.epa.gov/sites/default/files/2021-04/documents/project\\_7\\_overview.pdf](https://www.epa.gov/sites/default/files/2021-04/documents/project_7_overview.pdf) (last visited May 10, 2021) (highlighting Project 7 reliance on existing treatment facilities in Mexico).

166. *Id.* (providing sewage reduction rate of forty-four percent annually in Tijuana River channel, but four percent increase in pollution at SAB Creek).

167. *Id.* (noting potential alternative for treated water disposal).

168. *Id.* (discussing potential for continued pollution from other non-point sources).

169. *Project #5: Enhance Mexico Wastewater Collection System to Reduce Flows into Tijuana River*, U.S. ENV'T PROT. AGENCY, [https://www.epa.gov/sites/default/files/2021-04/documents/project\\_5\\_overview\\_0.pdf](https://www.epa.gov/sites/default/files/2021-04/documents/project_5_overview_0.pdf) (last visited May 10, 2021) (examining plan to improve existing infrastructure in Mexico).

age throughout Tijuana.<sup>170</sup> This would lead to less wastewater collecting in the canyons or entering the main river channel.<sup>171</sup> Nevertheless, due to uncertainties surrounding the scope of necessary repairs and improvements, the EPA's cost estimates range between eighty-five million dollars and eight hundred million dollars.<sup>172</sup>

## 2. Sewage Treatment Projects

The EPA's analysis of water outflowing from SAB Creek into the Pacific Ocean measured raw-sewage BOD levels at over 15,860 tons annually.<sup>173</sup> In response to this extreme pollution, the EPA's Project 8 recommends upgrading the SABTP's treatment capacity to forty MGD, which could reduce pollution entering the Pacific from SAB Creek by up to ninety-seven percent.<sup>174</sup> Further, the EPA estimates the cost to complete Project 8 will total two hundred million dollars million initially, and \$613 million over a forty-year period.<sup>175</sup> From a public health standpoint, Project 8 would decrease beach closures in the United States by minimizing the BOD carried north by transboundary ocean currents.<sup>176</sup>

Another project the EPA is considering to decrease SAB Creek pollution would treat all the wastewater Tijuana produces in the United States.<sup>177</sup> Project 3 would fund an expansion of SBIWTP to treat fifty MGD of wastewater originating in Tijuana that would otherwise be discharged into the Pacific without proper treatment.<sup>178</sup>

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170. *Id.* (noting plan targets untreated wastewater before entering water system).

171. *See id.* (explaining intended benefit of Project 5).

172. *See id.* (revealing possible massive costs associated with "unquantifiable" benefits).

173. *USMCA Informational Meeting, supra* note 157 (highlighting SAB creek and SABTP collectively discharge fifty million gallons of untreated water into Pacific Ocean daily). For comparison, the EPA measured BOD levels near the mouth of the Tijuana River at approximately 1,500 tons per year. *Id.* (providing comparison).

174. *Project #8: Upgrade SAB Wastewater Treatment Plant to Reduce Untreated Wastewater to Coast*, U.S. ENV'T PROT. AGENCY, [https://www.epa.gov/sites/default/files/2021-04/documents/project\\_8\\_overview.pdf](https://www.epa.gov/sites/default/files/2021-04/documents/project_8_overview.pdf) (last visited May, 10, 2021) (introducing plan to improve SABTP). Additionally, the EPA anticipates that the forty MGD figure will provide "sufficient treatment capacity for current flows . . ." *Id.* (noting improvement to SABTP will meet current Tijuana, Mexico requirements).

175. *Id.* (estimating annual operating and maintenance costs at \$7.4 million).

176. *Id.* (predicting sixty-percent beach closure reduction in United States).

177. *Project #3: Treat Wastewater from the International Collector at the ITP*, U.S. ENV'T PROT. AGENCY, [https://www.epa.gov/sites/default/files/2021-04/documents/project\\_3\\_overview.pdf](https://www.epa.gov/sites/default/files/2021-04/documents/project_3_overview.pdf) (last visited May 10, 2021) (describing scope of Project 3).

178. *Id.* (predicting Project 3 will reduce strain on SABTP).

This project, however, would not eliminate wastewater or sewage in the canyon collectors that are currently pumped to SABTP for disposal.<sup>179</sup> To address wastewater originating in the canyons, the EPA drafted Project 4, which will carry untreated canyon wastewater to the United States for treatment and disposal.<sup>180</sup> In addition to environmental benefits, the EPA anticipates that Project 4 will reduce health hazards to Border Patrol personnel and local inhabitants.<sup>181</sup>

Finally, Project 9 requires the EPA to purchase and repurpose the South Bay Water Reclamation Plant (SBWRP) from the City of San Diego to treat sewage originating in Tijuana, Mexico.<sup>182</sup> Project 9 aims to utilize the SBWRP, along with existing treatment facilities, to treat and discharge an additional fifteen MGD of wastewater from Mexico.<sup>183</sup> Under Project 9, the EPA estimates that raw sewage discharges into the SAB Creek could be reduced by half — decreasing beach closures by thirty-two percent.<sup>184</sup> Additionally, by utilizing the SBWRP to process wastewater from Mexico, Project 9 would likely result in more immediate environmental benefits due to minimal construction requirements.<sup>185</sup>

### 3. Addressing Trash and Sediment Pollution

The EPA is considering two projects to reduce sediment and trash affecting the TRV and Pacific Ocean: Project 6 and Project 10.<sup>186</sup> Project 6 consists of constructing infrastructures that collect waste in the main river channel and in Smuggler's Gulch Canyon.<sup>187</sup> In contrast, Project 10 uses preventative measures to

179. *See id.* (excluding canyon pollution from scope of project).

180. *Project #4: Shift Wastewater Treatment of Canyon Flows to U.S. (via Expanded ITP) to Reduce Flows to San Antonio de los Buenos*, U.S. ENV'T PROT. AGENCY, [https://www.epa.gov/sites/default/files/2021-04/documents/project\\_4\\_overview.pdf](https://www.epa.gov/sites/default/files/2021-04/documents/project_4_overview.pdf) (last visited May 10, 2021) (anticipating Project 4 will decrease transboundary water pollution in canyons and Pacific Ocean).

181. *Id.* (highlighting public health benefits).

182. *Scoping Meeting*, *supra* note 156, at 33:00 (discussing possible purchase of additional water treatment facility in Project 9). The SBWRP currently treats wastewater from San Diego, California. *Id.* (explaining repurposing and change of water treatment).

183. *Project #9: Treat Wastewater from the International Collector at the SBWRP*, U.S. ENV'T PROT. AGENCY, [https://www.epa.gov/sites/default/files/2021-04/documents/project\\_9\\_overview.pdf](https://www.epa.gov/sites/default/files/2021-04/documents/project_9_overview.pdf) (last visited May 10, 2021) (noting reduced wastewater diversion to SABTP).

184. *Id.* (providing anticipated impacts of Project 9).

185. *Id.* (describing necessary construction including “new on-site solids processing facility”).

186. *Scoping Meeting*, *supra* note 156, at 34:39 (introducing initiatives designed to curb solid wastes).

187. *Project #6: Construct New Infrastructure to Address Trash and Sediment*, U.S. ENV'T PROT. AGENCY, <https://www.epa.gov/sites/default/files/2021-04/docu>

preemptively reduce the volume of sediment and trash that enter water sources.<sup>188</sup> Project 10 proposes the EPA implement “best management practices (BMPs) [to] reduce trash and sediment, such as road paving, tire recycling, green infrastructure, public outreach, and land stabilization.”<sup>189</sup> According to the EPA, these reductions could theoretically decrease operations and maintenance costs on “key” wastewater infrastructure along the border.<sup>190</sup>

## B. Solving the Crisis in Mexico

Solutions for improving water quality must first address Mexico’s wastewater woes.<sup>191</sup> To prevent another catastrophic spill, Tijuana must improve and expand its aging sewage infrastructure to meet its growing population.<sup>192</sup> Additionally, because of Tijuana and San Diego’s arid environment, funding initiatives to reuse polluted water ensure a healthy environment and protect the region’s population.<sup>193</sup>

### 1. Improving Tijuana’s Infrastructure

Although the USMCA authorizes a portion of the three hundred million dollars to be spent on projects in Mexico, the EPA indicates that it will prioritize the USMCA-funded projects located in the United States.<sup>194</sup> Aside from USMCA funding, Mexico could pursue funding from the Border Wastewater Infrastructure Program (BWIP) and the North American Developmental Bank to up-

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ments/project\_6\_overview.pdf (last visited May 10, 2021) (noting installation of “flood mitigation infrastructure” under this proposal). The EPA designed the trash boom and sediment basin to be constructed on the United States side of the border to capture large pieces of trash during wet-weather events. *Scoping Meeting*, *supra* note 156, at 35:00 (describing trash boom purpose).

188. *Project #10: Sediment and Trash Source Control*, U.S. ENV’T PROT. AGENCY, [https://www.epa.gov/sites/default/files/2021-04/documents/project\\_10\\_overview.pdf](https://www.epa.gov/sites/default/files/2021-04/documents/project_10_overview.pdf) (last visited May 11, 2021) (discussing preventative measures focused in Mexico).

189. *Id.* (discussing potential economic benefits of best management practices).

190. *Id.* (highlighting tangible benefits of project); *see also* Stahl, *supra* note 6 (explaining frequent system shutdowns caused by trash and debris).

191. Telephone Interview with Gabriela Torres, Pol’y Coordinator, Surfrider Found. (Feb. 26, 2021) (noting Mexico’s wastewater infrastructure issues must be solved for long-term reduction in pollution).

192. *See* DIVERSION STUDY, *supra* note 6, at ES-11 (explaining problem will get worse without reuse of treated water).

193. *See id.* (emphasizing importance of reusing treated water).

194. *See USMCA Informational Meeting*, *supra* note 157 (discussing allocation of USMCA funds).

date its wastewater infrastructure.<sup>195</sup> The BWIP began funding projects that aimed to improve water sanitation and access to drinking water along the border in the 1990s.<sup>196</sup> The BWIP initially received one hundred million dollars of funding per year, but Congress has only allocated thirty million dollars for Fiscal Year 2021.<sup>197</sup>

Additional funding will improve Mexico's pump station PB-CILA, bolstering its reliability and capacity to divert untreated water during wet- or dry-weather flows and overall reducing transboundary pollution.<sup>198</sup> Although Baja California officials installed and upgraded infrastructure for PB-CILA to increase its diversion capacity to thirty-five MGD in 2020, PB-CILA is still shut down during wet-weather events to prevent damage to the system.<sup>199</sup> Moreover, PB-CILA's upgrades did not address the pump's vulnerability to power outages and during late 2020, failures in electrical service caused millions of gallons of sewage spills.<sup>200</sup>

Although improvements to the water diversion infrastructure will reduce transboundary flows, the polluted water PB-CILA diverts towards the SABTP wastewater plant remains untreated before its discharge into the Pacific Ocean.<sup>201</sup> EPA studies measured BOD

195. *Id.* (explaining alternative funding sources for improvements in Mexico).

196. *U.S.-Mexico Border Water Infrastructure Program*, U.S. ENV'T PROT. AGENCY, <https://www.epa.gov/small-and-rural-wastewater-systems/us-mexico-border-water-infrastructure-grant-program> (last visited Feb. 24, 2021) (describing BWIP focus on clean drinking water). Further, BWIP-eligible projects must be located within sixty-two miles of the border and address problems currently distressing the wellness of inhabitants and the environment. *Id.* (illustrating BWIP funding requirements).

197. Letter from Kevin L. Faulconer, Mayor, San Diego, Cal. to San Diego Cong. Delegation (Mar. 22, 2019), [https://www.sandiego.gov/sites/default/files/19.03.22\\_letter\\_to\\_delegation\\_bwip\\_nadbank.pdf](https://www.sandiego.gov/sites/default/files/19.03.22_letter_to_delegation_bwip_nadbank.pdf) (discussing original BWIP funding amount); *Rep. Peters' Energy, Environmental Priorities Passed Within Bipartisan, Bicameral Funding Package*, OFF. OF REPRESENTATIVE SCOTT PETERS (Dec. 22, 2020), <https://scottpeters.house.gov/media-center/press-releases/rep-peters-energy-environment-priorities-passed-within-bipartisan> (reporting BWIP Fiscal Year 2021 funding figure).

198. *See USMCA Informational Meeting*, *supra* note 157 (noting crucial PB-CILA updates and maintenance).

199. *Id.* (discussing PB-CILA improvements).

200. *See Mackenzie Elmer & Vincente Calderon, Mexico Says It Fixed the Tijuana River Sewage Problem. It's Partly True.*, VOICE OF SAN DIEGO (Feb. 25, 2021), <https://www.voiceofsandiego.org/topics/government/mexico-says-it-fixed-the-tijuana-river-sewage-problem-its-partly-true/> (providing power outage dates and spill volume).

201. *USMCA Informational Meeting*, *supra* note 157 (explaining SABTP inability to treat current wastewater volume).

levels of 15,860 tons per year at SAB Creek.<sup>202</sup> If the SABTP does not update its infrastructure, seasonal ocean currents will continue to carry pollution north and prompt beach closures in San Diego County.<sup>203</sup> Accordingly, to reduce the hundreds of millions of gallons of wastewater directly discharged into the Pacific each year, the IBWC should seek funding to improve the SABTP or revisit plans to construct a new treatment plant as outlined in the Bajagua Project.<sup>204</sup>

## 2. *Wastewater Recycling*

In addition to wastewater diversion and treatment infrastructure, environmentalist groups are pushing for public-private partnerships between foreign-owned factories and Tijuana's government that focus on reducing plastics and water pollution in the region.<sup>205</sup> Through its "Clean Border Water Now" campaign, Surfrider Foundation approaches foreign-owned electronics, automobile, medical, aerospace, and beverage companies with proposals to invest in solutions to reclaim water utilized by factories during manufacturing.<sup>206</sup> By requiring factories to reuse water expended in manufacturing, transboundary flows could decrease due to less water entering the IBWC's diversion system.<sup>207</sup>

Furthermore, recycling wastewater for reuse in manufacturing or agriculture would result in better water sustainability for the arid Tijuana region.<sup>208</sup> Over ninety percent of Tijuana's water supply flows from the Colorado River, but Tijuana only recycles three per-

202. *Id.* (providing BOD figure under current infrastructure). Comparatively, the EPA measured BOD levels of 1,500 tons per year at the mouth of the Tijuana River in the United States. *Id.* (providing measurement in United States).

203. *Id.* (noting effluent travel direction contingent on season or storm currents).

204. *See id.* (suggesting construction of a new plant).

205. Email from Gabriela Torres, Pol'y Coordinator, Surfrider Found. San Diego, to author (Feb. 26, 2021, 11:37 EST) (on file with author) (discussing private industry participation to address border water pollution).

206. *Id.* (noting increased sustainability through water reuse).

207. *See, e.g.,* Sandra Dribble, *Plan to Use Reclaimed Tijuana Wastewater in Guadalupe Valley Vineyards Moves Forward*, SAN DIEGO UNION-TRIBUNE (Aug. 20, 2018, 5:00 AM PST), <https://www.sandiegouniontribune.com/news/border-baja-california/sd-me-water-guadalupe-20180820-story.html> (discussing plans to not dump recycled water into Pacific Ocean).

208. *See* MacKenzie Elmer & Vincente Calderon, *Who Owns the Tijuana River – and Who Needs its Water Most*, VOICE OF SAN DIEGO (Jan. 11, 2021), <https://www.voiceofsandiego.org/topics/government/who-owns-the-tijuana-river-and-who-needs-its-water-most/> (detailing Tijuana's year of water rationing due to low supply).

cent of its wastewater.<sup>209</sup> Accordingly, approximately ninety-seven percent of its reusable wastewater ends up discarded.<sup>210</sup> In 2018, an Israeli company and the government of Baja California reached an agreement to build a water reclamation facility, but they have not yet implemented the plan.<sup>211</sup> Should the plan materialize, a private wastewater treatment facility would sanitize a portion of Tijuana's water and pump it to surrounding agricultural areas.<sup>212</sup>

#### V. MOVING TOWARD A SOLUTION

Resolving TRV pollution requires strong, centralized agency leadership and binational cooperation.<sup>213</sup> The EPA is finalizing a feasibility study on projects to divert and treat transboundary wastewater flows, but ultimately, the EPA must first address pollution sources in Mexico.<sup>214</sup> To that end, the United States Department of State should leverage a new Treaty Minute to commit Mexico to rehabilitating and expanding its sewage system to accommodate future population growth and prevent transboundary wastewater flows.<sup>215</sup> Similarly, public-private partnerships with foreign factories assuming responsibility for industry-related pollution and investing resources into Tijuana's wastewater system would lessen both the United States and Mexico's financial investment, as well as fund a greater number of wastewater initiatives than current USMCA funding authorizes.<sup>216</sup>

*Andrew Simmons\**

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209. *Id.* (providing water reuse percentage).

210. *See id.* (noting wastefulness of Tijuana's treatable water discharged to wastewater systems).

211. *Id.* (discussing contract to repurpose wastewater).

212. *Id.* (explaining benefits of recycled water for vineyards in Guadalupe Valley).

213. *See* Sen. Dianne Feinstein, *No One is Actually in Charge of Solving the Border Sewage Crisis*, VOICE OF SAN DIEGO (Aug. 12, 2020), <https://www.voiceofsandiego.org/topics/opinion/no-one-is-actually-in-charge-of-solving-the-border-sewage-crisis/> (highlighting lack of central leadership and agency control).

214. *See USMCA Informational Meeting*, *supra* note 157 (analyzing project updates).

215. *See* Telephone Interview with Gabriela Torres, Pol'y Coordinator, Surfrider Found. (Feb. 26, 2021) (discussing role United States Department of State must play).

216. *Id.* (noting future environmental benefits of industry participation).

\* J.D. Candidate, May 2022, Villanova University Charles Widger School of Law; B.A., History, 2009, University of Connecticut; A.A.S., Information Systems Technology, 2012, Community College of the Air Force. Foremost, I would like to thank my family for their love and support throughout law school and this publication process, especially my wife, Suzanne, and my daughter, Brynlee. I would also like to express my gratitude to the 2020-2021 *Villanova Environmental Law Journal*

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