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By-Products of Prosperity: Transborder Hazardous Waste Issues Confronting the Maquiladora Industry

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INTRODUCTION

The maquiladora program is one of the most significant developments in the United States and Mexican economies in the past thirty years. Implemented in 1965 as part of Mexico's Border Industrialization Program, the maquiladora program was specifically designed to generate employment and stimulate industry in Mexico by allowing Mexican laborers to work in American factories operating in Mexico. The goods produced by these factories are then allowed to re-enter the United States without the imposition of customs duties.

The key to the maquiladora program is the abundance of high quality, low-cost labor in Mexico. At an approximate rate of \$1.63

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per hour (including benefits), Mexico's labor costs are among the lowest in the world.¹ Companies forced to move labor-intensive assembly operations have traditionally chosen other Pacific Rim countries for these activities. However, these companies are increasingly choosing Mexico due to its abundant work force and proximity to the United States. Companies from the United States, Europe, and Asia have formed about 2,000 maquiladoras along the United States/Mexico border,² with a total work force of about 500,000 employees.³

The rapid industrialization of Mexico fostered by the maquiladora program has placed the country on a "fast track" for upgrading its infrastructure. Streets and roads, sewer and water supplies, and medical and fire services require improvement and expansion. Rapid industrialization is also straining the country's ability to protect its environment. One of the most significant environmental issues raised by the maquiladoras is the safe and efficient management of the hazardous waste they produce.

Hazardous waste management is now serious business in the United States, but the present approach to regulating hazardous wastes is a relatively new concept. As recently as the 1950s and 1960s, chemical waste from the nation's industries was placed in poorly engineered landfills or dumped into rivers and streams. Many of these landfills were not capable of holding hazardous materials, and the chemicals escaped to contaminate the air, soil, and groundwater. Cleaning up these past waste disposal mistakes will be a multibillion-dollar undertaking.⁴

Mexico has learned much from the United States' environmental experience. In the past few years, Mexico has enacted significant new laws designed to protect its environment.⁵ The legislation

1. Baker, *Mexico: A New Economic Era*, Bus. Wk., Nov. 12, 1990, at 105. Mexico's wages are substantially lower than those paid to workers in Singapore (\$2.25), South Korea (\$2.94) and Taiwan (\$3.71), countries which have generally been known for their inexpensive labor forces.

2. MAQUILADORA NEWSL., Feb. 1991, at 7 (American Chamber of Commerce of Mexico, A.C.) [hereinafter NEWSL.] (based on August 1990 statistics). Some of the larger corporations with maquilas include Ford Motor Company, Kodak, IBM, Whirlpool, Caterpillar, Volkswagen, Nissan, and Sony. *Mexico's Hope for Industrial Might*, N.Y. Times, Sept. 25, 1990, at D1, col. 3.

3. NEWSL., *supra* note 2, at 7.

4. It is estimated that it will cost up to \$500 billion just to clean up waste disposal sites which have been identified under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 42 U.S.C. §§ 9610-9675. *The X and Y Memo at Love Canal*, FIN. TIMES LTD., May, 1991. The U.S. Departments of Defense and Energy have estimated that it will cost an additional \$150 billion over 30 years to clean up waste sites at these federal installations. *Representative Fazio Seeks Funds to Clean Up Closed Bases; Cleanup Could Cost \$150 Billion*, Fed. Cont. Rep. (BNA) 12 (July 2, 1990).

5. See generally General Law of Ecological Equilibrium and Environmental Protection, Mex. Fed. D.O., Jan. 28, 1988 [hereinafter General Environmental Law], and

regulating hazardous waste management is similar in magnitude and effect to that enacted in the United States. This complementary system encourages companies seeking to locate along the United States/Mexico border. Technologies, training, testing procedures and labelling, and packaging and shipping requirements of the United States and Mexico are similar. More significantly, this similarity facilitates the transborder shipment of hazardous materials and waste, a hallmark of the maquiladora program.⁶ After a brief discussion of the current status and significance of the maquiladora industry, this Article explains the procedures for the transborder shipment of hazardous waste and analyzes these procedures in light of anticipated regulatory and economic trends in the region.

I. BACKGROUND OF THE MAQUILADORA INDUSTRY

A. Origins of the Maquiladora Program

Between 1952 and 1964, the "Bracero Program" permitted Mexican nationals to work in the United States when the seasonal need for agricultural labor was greatest.⁷ After the Bracero Program was eliminated, the Mexican government's desire to create new employment opportunities engendered the maquiladora program. However, the architects of the maquiladora program sought to implement a much more ambitious economic strategy. Originally known as the "Border Industrialization Program," and limited to the border-area, the maquiladora program was later expanded to allow the establishment of maquiladora plants anywhere in Mexico. Subsequent pronouncements by the Mexican government further broadened the program's scope. The 1983 Presidential Decree for the Development and Operation of the In-Bond Export Industry⁸ gave maquiladoras preferential treatment by Mexican customs and allowed for the direct sale in Mexico of limited quantities of maquiladora products.

regulations promulgated thereunder. For a discussion of the general provisions of Mexico's environmental statutes, see *infra* notes 28-44 and accompanying text.

6. See Decree for the Development and Operation of the In-Bond Export Industry, Mex. Fed. D.O., ch. II, art. 10 (Aug. 15, 1983) [hereinafter Decree], reprinted in [Vol. **] *DOING BUSINESS IN MEXICO*, App. S-2 (July 1987). This article of the Decree provides that wastes must be "destroyed, donated to welfare or educational institutions, returned abroad, or, in case it complies with legal requirements, imported permanently." *Id.* Because the legal requirements for nationalizing wastes are quite stringent, most wastes are either illegally dumped in Mexico or returned to their country of origin (in most cases, the United States).

7. Pub. L. No. 82-78, 65 Stat. 119 (1951).

8. See Decree, *supra* note 6, at ch. II, art. 12, 13.

The most recent set of Mexican regulations regarding foreign investment further promotes the expansion of United States investment in the maquiladoras.⁹ These regulations exempt maquiladoras registered in the National Maquiladora Industry Registry from certain financial reporting requirements.¹⁰ Additionally, these regulations liberalize leasing and purchasing requirements relating to Mexican real property¹¹ and facilitate government approval procedures for the establishment or expansion of maquiladoras and the sale of maquiladora products in Mexico.¹²

B. Growth of the Maquiladora Program

During the 1980s, the maquiladora program expanded at the rate of approximately 20 percent per year.¹³ Ciudad Juarez, Chihuahua, and Tijuana¹⁴ are now the largest centers of production for Mexico's 2,000 maquiladoras.¹⁵ The two largest maquiladora industries are semiconductor manufacturing, which accounts for approximately forty percent of maquiladora operations,¹⁶ and circuit board printing, constituting approximately twenty percent of production.¹⁷

C. Significance of the Maquiladora Program for the Mexican Economy

The maquiladora program generates significant employment and other benefits for the Mexican economy. Maquiladora plants now employ approximately 500,000 Mexican workers.¹⁸ The maquiladora industry has also become Mexico's second largest source of foreign

9. See Regulation to the Law to Promote Mexican Investment and Regulate Foreign Investment, Mex. Fed. D.O., (May 16, 1989), reprinted in [Vol. **] DOING BUSINESS IN MEXICO, Part IV, App. IV (June 1991).

10. *Id.* at art. 6.

11. *Id.* The 1989 regulations give maquiladoras the right to purchase or lease land outside the restricted zone (i.e. within 100 kilometers of the borders or 50 kilometers of the coastline) without requiring permission from the Secretariat of Foreign Relations (Ministry of Foreign Affairs). *Id.* at art. 1, § III, art. 36.

12. *Id.* at art. 1, § III, art. 36. Under the 1989 regulations, maquiladoras may have up to 100% foreign investment participation without obtaining permission from the Ministry of Trade and Industrial Development. *Id.* at art. 6. They are also no longer required to obtain authorization to expand their operations, open new facilities or enlarge their product lines. *Id.*

13. Statistics indicating this growth rate are reported annually in the Maquiladora Newsletter published by the American Chamber of Commerce of Mexico, A.C. See, e.g., NEWSL., *supra* note 2.

14. Flynn, *U.S. Factories Operating in Mexico Help Both Economies, Study Shows*, UPI, July 16, 1988 (NEXIS).

15. NEWSL., *supra* note 2, at 7 (based on Aug. 1990 statistics).

16. A.M. Pérez, Hazardous Waste Management at the Mexican-U.S. Border, 23 ENVTL. SCI. & TECH. 1208, 1210 (1989).

17. *Id.* Other maquiladora concerns that are likely to produce hazardous wastes include paint and chemicals manufacturers.

18. NEWSL., *supra* note 2, at 7 (based on Aug. 1990 statistics).

currency.¹⁹ Other goals of the maquiladora program, the achievement of which is more difficult to measure, are the transfer of new technologies to modernize Mexican production and the training of a significant portion of the Mexican work force.²⁰

D. Significance of the Maquiladoras for the United States Economy

Despite accusations that the maquiladoras are displacing American jobs,²¹ several studies have established that the maquiladora system actually benefits the American economy. The maquiladora program has created United States jobs along the border.²² Moreover, although many companies from Europe and Asia are also taking advantage of the maquiladora program,²³ the proximity of many Mexican maquiladoras to their United States parent companies allows for sourcing of raw materials from the United States. In fact,

19. EPA-SEDUE, THE MAQUILADORA INDUSTRIES HAZARDOUS WASTE MANAGEMENT MANUAL 22 (1st ed. November 1989 [hereinafter MANUAL]). For example, in Baja California, maquiladoras contributed \$23 million per month to the economies of Tijuana, Tecate, and Ensenada. Lindquist, *Yet Another Flag Rises Over Burgeoning Baja Twin-Plant Industry*, San Diego Union, Perspective 89, at 33 (Jan. 30, 1989) (quoting Jose Luis Ascolani, a SECOFI official).

20. See Decree, *supra* note 6, at ch. II, art. 16.

21. See, e.g., L. KOCHAN, THE MAQUILADORAS AND TOXICS: THE HIDDEN COSTS OF PRODUCTION SOUTH OF THE BORDER (1989).

22. A 1988 report prepared by economists at the U.S. Department of Labor indicated that it is very difficult to quantify the number of U.S. jobs created by the maquiladora program or how many U.S. jobs would be lost if the duty-free status granted to maquiladora products was repealed. The Department of Labor study concluded that the elimination of U.S. tariff provisions supporting maquiladora imports would result in a slight decrease in U.S. jobs. However, the analysis focused only on the effects of repealing duty-free treatment, rather than on the past impact of the maquiladora program on U.S. markets. See U.S. DEPARTMENT OF LABOR, U.S. EMPLOYMENT IMPACT OF TSUS 806.30 AND 807.00 PROVISIONS AND MEXICAN MAQUILADORAS: A SURVEY OF ISSUES AND ESTIMATES 56 (August 1988). In this regard, the study cited a number of surveys conducted in border communities in 1987 which indicated that the maquiladora program is responsible for generating over 29,000 jobs in these communities, or an average of 1.7% of their total employment. See *id.* at Table 20 (citing D. MICHIE & D. HAGANS, MEXICO'S MAQUILADORA: A SOLID FOUNDATION FOR U.S. BORDER STATE ECONOMIC DEVELOPMENT? (1987)). On a smaller scale, a 1986 study of the effects of the maquiladora industry in Ciudad-Juarez on employment in El Paso, Texas, indicated that maquiladoras generated one out of every five new jobs in the El Paso area. R. Sprinkle, Project Link: An Investigation of the Employment Linkages Between Cd. Juarez and El Paso (Dec. 1986) (unpublished paper).

23. See generally Lindquist, *supra* note 19, at 40.

ninety-eight percent of the raw materials used in American maquiladora production come from the United States.²⁴ Finally, by keeping labor costs down, the relocation of some production processes to maquiladora plants enables United States manufacturers to compete more effectively with Japanese and other Asian-made products.²⁵

E. Significance of Hazardous Waste Issues for the Maquiladora Industry

Although maquiladora operators should ensure that they strictly comply with all Mexican laws regulating their operations, compliance with regulations pertaining to hazardous wastes is especially important for several reasons. First, there are substantial economic risks associated with noncompliance, including onerous administrative penalties and potentially exorbitant civil damages. Second, growing public concern about environmental issues, and more specifically hazardous substances, means that manifest noncompliance with hazardous waste regulations may generate adverse public reaction and jeopardize the existence of the maquiladora program.²⁶ Finally, and most important, the responsible management of hazardous wastes promotes a cleaner environment not only in Mexico, but also in the United States. For example, San Diego, California and Tijuana, Baja California share a common groundwater aquifer; therefore, any pollution of groundwater on either side of the border would constitute a major public health problem in both nations. Thus, the costs of environmental compliance should be considered an ordinary cost of doing business under the maquiladora program.

Maquiladoras are, of course, subject to Mexico's general environmental laws and administrative regulations. In addition, there are specific provisions of Mexican law and of the 1983 Executive Agreement for the Protection of the Border Environment between Presidents Reagan and de la Madrid that relate to the disposition of hazardous wastes generated by maquiladoras.²⁷ This Article discusses these legal requirements and the practical problems associated with compliance. This article also analyzes the civil liabilities and penalties potentially faced by maquiladoras for the improper management of hazardous wastes.

24. See Flynn, *supra* note 14, at NEXIS p. 5.

25. See, e.g., Flynn, *supra* note 14, NEXIS at p. 2; MANUAL, *supra* note 19, at 22.

26. See discussion of United States public concern over Mexico's environmental policies *infra* at notes 214-16.

27. General Environmental Law, *supra* note 5; Agreement Between the United States of America and the United Mexican States on Cooperation for the Protection and Improvement of the Environment in the Border Area, Aug. 14, 1983, art. XI [hereinafter La Paz Agreement], discussed *infra* at notes 105-15 and accompanying text.

II. ENVIRONMENTAL REGULATION OF MAQUILADORAS

Mexico's General Law of Ecological Equilibrium and Environmental Protection,²⁸ which took effect on March 1, 1988, creates a comprehensive scheme of environmental regulation that attempts to address a wide range of environmental issues from the preservation of natural areas to the control of air pollution.²⁹ Although this legislation is superficially structured much differently than the environmental regulations of the United States,³⁰ much of the Mexican regulatory system is modeled on American environmental laws.³¹ Because Mexico's constitutional government is very similar to that of

28. General Environmental Law, *supra* note 5.

29. For example, Title II of the General Environmental Law deals with the preservation of natural areas, Title III concerns natural resource conservation, and Title IV outlines pollution control measures. *Id.*

30. The United States has adopted a piecemeal approach to environmental regulation, adopting legislation to address new environmental problems as they arise. The earliest federal environmental measures focused solely on preserving the nation's wilderness areas. These measures were generally adopted one at a time to protect individual areas. *See, e.g.*, 16 U.S.C.A. § 21 et seq. (establishing Yellowstone National Park; enacted March 1, 1872); 16 U.S.C.A. § 46 (establishing Yosemite National Park; enacted February 7, 1905); 16 U.S.C.A. § 221 (establishing Grand Canyon National Park; enacted February 26, 1919). The first major environmental problems addressed by federal legislation were air pollution (by the Clean Air Act, originally enacted July 14, 1955, codified at 42 U.S.C.A. § 7401) and water pollution (by the Federal Water Pollution Control Act, originally enacted July 9, 1956, codified at 33 U.S.C.A. §§ 1251-1387). These were followed by legislation to control toxic materials (the Toxic Substances Control Act, enacted October 11, 1976, codified at 15 U.S.C.A. § 2601), solid wastes (the Solid Waste Disposal Act, originally enacted October 20, 1965, codified at 42 U.S.C.A. §§ 3251-3259, and amended by the Resource Conservation and Recovery Act (RCRA), dealing specifically with hazardous wastes, enacted October 21, 1976, codified at 42 U.S.C.A. § 6901), and the so-called "Superfund" legislation to clean up dumpsites resulting from the lack of earlier hazardous waste disposal regulation (the Comprehensive Environmental Response, Compensation, and Liability Act, enacted December 11, 1980, codified at 26 U.S.C.A. §§ 4611-4612, 4661-4662, 4681-4682; 33 U.S.C.A. § 1364; 42 U.S.C.A. §§ 6911, 6911a, 9601-9615, 9631-9633, 9641, 9651, 9657; 49 U.S.C.A. § 11901).

In contrast, Mexico's General Environmental Law attempts to address all of these issues in a single piece of comprehensive legislation and then adopts more specific legal standards for administering the law in the form of regulations and technical standards issued by various federal agencies. Despite this different and superficial structure, most of Mexico's environmental legislation and regulations are quite similar to their American counterparts. *See* General Environmental Law, *supra* note 5.

31. In the area of hazardous waste regulation, for example, the General Environmental Law is very similar to the United States' RCRA. Both systems contemplate regulation of hazardous wastes from the point at which they are generated until their final disposal. They both attempt to accomplish this through a manifesting procedure that tracks the waste as it moves from the generator to the disposal site. The Regulations to the General Law of Ecological Equilibrium and Environmental Protection Relating to Hazardous Materials, Mex. Fed. D.O., Nov. 25, 1988, establish standards for safe storage, transportation, and disposal of hazardous wastes which are very similar to those promulgated in the regulations under RCRA, 40 C.F.R. 260-265 (revised as of July 1,

the United States,³² the governmental entities that administer its environmental laws are also very similar to their counterparts in the United States.³³ Moreover, as in the United States, specific standards and procedures for environmental compliance are set out in the Regulations to the General Environmental Law, which are issued by the responsible administrative agencies.³⁴

A. Administration of Mexico's General Environmental Law

Mexico's General Environmental Law provides for concurrent federal, state, and local regulation of environmental matters.³⁵ Article Four of the General Environmental Law reserves for federal regulation those "[m]atters . . . having general national scope or of federal interest."³⁶ These national matters include "prevention and control of environmental emergencies and risks,"³⁷ "regulation of activities that must be considered highly hazardous,"³⁸ and "regulation of activities related to hazardous materials or residues."³⁹

The agency responsible for administering environmental regulations pertaining to environmental issues of national scope is the Secretariat of Urban Development and Ecology, known by its Mexican acronym as SEDUE. SEDUE is responsible for formulating and administering general environmental policy⁴⁰ and coordinating the implementation of the General Environmental Law among the various

1991). For a more detailed discussion of the Mexican hazardous waste regulations, see *infra* notes 45-104 and accompanying text.

32. Mexico, like the United States, has a federal system of government. Mexico consists of 31 states with separate state governments and "municipios," which are similar to American counties. Mexico also has a tripartite government, made up of executive, legislative and judicial branches. The executive branch includes a number of administrative agencies, the major officials of which are generally appointed by the Mexican president. MEX. CONST., reprinted in [Vol. **] DOING BUSINESS IN MEXICO, Part I, App. 2 (June 1991).

33. The Mexican agency charged with administering the federal environmental laws is the Secretariat of Urban Development and Ecology (SEDUE). SEDUE's scope of rule-making authority and enforcement powers is analogous to that of the U.S. Environmental Protection Agency (EPA), although SEDUE has fewer resources available for actual enforcement efforts.

34. For example, since the enactment of the General Environmental Law in 1988, SEDUE has issued regulations pertaining to environmental impact assessment (Regulations to the General Law of Ecological Equilibrium and Environmental Protection With Respect to Environmental Impact, Mex. Fed. D.O., June 7, 1988), air pollution (Regulations to the General Law of Ecological Equilibrium and Environmental Protection Relating to Prevention and Control and Air Pollution, Mex. Fed. D.O., Nov. 25, 1988), and hazardous wastes (Regulations to the General Law of Ecological Equilibrium and Environmental Protection Relating to Hazardous Residue, Mex. Fed. D.O., Nov. 25, 1988).

35. General Environmental Law, *supra* note 5, at art. 4.

36. *Id.*

37. *Id.* at art. 5, § IX.

38. *Id.* at art. 5, § X.

39. *Id.* at art. 5, § XIX.

40. *See id.* at art. 8.

federal agencies, state and local governments, and private industry.⁴¹ SEDUE is also charged with proposing regulations to the Mexican President concerning a variety of environmental issues, including hazardous materials and wastes.⁴² SEDUE establishes the "ecological technical standards" required for compliance with the General Environmental Law.⁴³ In addition, SEDUE evaluates environmental effects and grants authorization for a variety of private sector activities, including manufacturing, exploring for and extracting minerals, developing tourism, and creating facilities for the treatment, storage, and disposal of hazardous waste.⁴⁴

B. Specific Regulatory Requirements for Generators and Handlers of Hazardous Waste

While maquiladoras are required to comply with all of Mexico's environmental laws, the most significant environmental legislation applicable to maquiladoras is the vast regulatory structure surrounding the generation, handling, and disposal of hazardous material and waste.⁴⁵ The General Environmental Law outlines the basic

41. See *id.* Article 8 requires that SEDUE coordinate its efforts with other federal agencies "in accordance with their respective spheres of competence" in taking action to protect the environment, *id.* § III; proposing to the President the creation of protected natural areas, *id.* § IV; planning "general ecological regulation for the Mexican territory," *id.* § VI; and formulating ecological criteria for the protection of Mexico's natural resources, *id.* § VIII. SEDUE is also responsible for coordinating actions with the private sector. *Id.* § XVII.

42. *Id.* at art. 8, §§ XI (hazardous materials), XIV (pesticides, fertilizers and toxic substances), XV (preservation and restoration of ecological equilibrium).

43. *Id.* at art. 8, §§ VII (nationwide ecological technical standards), XIII (technical standards for fuel and energy sources). See also art. 9, §§ II (standards for emissions of mobile sources), VII (standards for use of waste water), VIII (technical standards for treatment and disposal of solid wastes).

44. See *id.* at art. 8, § IX; art. 9, § XII.

45. The maquiladora industry's history of questionable practices in the disposal of hazardous wastes has had two major effects. First, since the initiation of SEDUE's enforcement efforts against the maquiladoras in May 1989, plants have been subject to unannounced inspections, sometimes resulting in substantial fines and, for some facilities, temporary or permanent closure. See, e.g., Browne & Lindquist, *New Curbs on Industry Pollution Could Affect Area Maquiladoras*, San Diego Union, Aug. 6, 1989, at I-1 col. 2, I-6 col. 4. Second, "unsubstantiated horror stories" about the maquiladoras' hazardous waste management practices have proliferated. Davis & Pérez, *Hazardous-waste Management at the Mexican-U.S. Border*, 23 ENVTL. SCI. & TECH. 1208, 1209 (1989). These stories have been used by opponents of the maquiladora program, primarily U.S. labor organizations, to enhance opposition to the maquiladora system. See *Statement by the AFL-CIO Executive Council on the Impact of the Maquiladora Program on Workers' Health and the Environment* (Feb. 22, 1989), reprinted in El Paso Foreign Trade Association, *Paseo del Norte Trade News* 3 (July 1989). The AFL-CIO also commissioned its own report about maquiladora hazardous waste disposal practices, which charged that

regulatory structure. It defines some characteristics considered hazardous, establishes basic standards for the management of these substances, and governs the import and export regulations.⁴⁶

Step-by-step procedures for the proper handling, treatment, storage, and disposal of hazardous wastes are set forth in greater detail in the Regulations to the General Law of Ecological Equilibrium and Environmental Protection Relating to Hazardous Residue (Hazardous Residue Regulations), issued by SEDUE.⁴⁷ The Hazardous Residue Regulations became effective on November 26, 1988.⁴⁸ The General Environmental Law and the Hazardous Residue Regulations, taken together, may be divided into four basic categories: (1) standards for classifying a substance as a hazardous waste;⁴⁹ (2) procedures which must be observed by generators and handlers of hazardous waste, including reporting requirements;⁵⁰ (3) procedures to ensure adequate tracking and safe transport of hazardous wastes,⁵¹ and (4) standards for proper disposal of hazardous wastes.⁵² Each of these areas of regulation is discussed below.

such practices were polluting water supplies, exposing fish and wildlife to "extinction," threatening to poison the area's population with potential spills of hazardous substances, and failing to protect Mexican laborers from on-the-job dangers posed by hazardous materials. See KOCHAN, MAQUILADORAS: THE HIDDEN COSTS OF PRODUCTION SOUTH OF THE BORDER (1989). With the advent of negotiations for a new U.S.-Mexico Free Trade Agreement, the controversy surrounding the maquiladora program, especially its effects on U.S. employment, will undoubtedly also lead to the reconsideration of health and environmental issues raised by industry practices. In February 1990, René Altamirano, Director-General of Prevention and Control of Pollution for SEDUE, the head of SEDUE, estimated that approximately 25% of maquiladoras were in total compliance with Mexico's environmental laws, although many maquiladora organizations and operators believe this figure is understated as a result of inefficient recordkeeping by SEDUE. Address by René Altamirano, Border Trade Alliance Annual Meeting (Feb. 26, 1990).

46. See General Environmental Law, *supra* note 5, at art. 3, § XXVII; arts. 150-153.

47. See Regulations to the General Law of Ecological Equilibrium and Environmental Protection Relating to Hazardous Residue, Mex. Fed. D.O., Nov. 25, 1988 [hereinafter Hazardous Residue Regulations].

48. *Id.*

49. See, e.g., General Environmental Law, *supra* note 5, at art. 3 § XXVII. The criteria for classification as a hazardous substance and the specific substances constituting hazardous materials or wastes are set forth in the ecological technical standards for hazardous materials established by SEDUE. See NTE-CRP-001/888. See also NTE-CRP-002/88 (procedure for extraction tests to determine hazardous components); NTE-CRP-003/88 (procedure to determine incompatibility of hazardous substances); Hazardous Residue Regulations, *supra* note 47, at art. 41 (expired drugs and other "industrially originated products" deemed hazardous).

50. See Hazardous Residue Regulations, *supra* note 47, at ch. II, III.

51. See *id.* at arts. 21-29.

52. See *id.* at arts. 30-40.

1. *Standards for Classifying Substances as Hazardous Wastes*

The standards for determining what constitutes a hazardous waste are found primarily in the provisions of the General Environmental Law.⁵³ The General Environmental Law defines hazardous residues as "all residues, in any physical state, that due to corrosive, toxic, poisonous, reactionary, explosive, flammable, infectious or irritating biological properties, represent a danger to ecological equilibrium or to the environment."⁵⁴ SEDUE and other government agencies⁵⁵ apply this definition in determining which wastes qualify as hazardous and publish a list of such hazardous materials and wastes in the federal *Diario Oficial*.⁵⁶

Additionally, the Hazardous Residue Regulations require "individuals or companies, public or private, who . . . generate residues"⁵⁷ to determine whether the wastes that they produce are hazardous.⁵⁸ Thus, private parties are required to perform "necessary tests and analyses"⁵⁹ on substances they use or generate to determine if they are hazardous pursuant to the corresponding technical standards issued by SEDUE.⁶⁰

2. *Operating Procedures for Generators and Handlers of Hazardous Waste*

Mexico's hazardous waste regulations contain detailed requirements for the operations of hazardous waste generators and handlers. A generator is defined as an "individual or company which as a result of its activities produces hazardous residues."⁶¹ The "handling" of hazardous wastes includes the "storage, collection, transportation, warehousing, re-use, treatment, recycling, incineration, and final disposal of hazardous residues."⁶² Both generators and

53. See General Environmental Law, *supra* note 5, at art. 3, § XXVII.

54. *Id.*

55. Article 150 of the General Environmental Law requires the involvement of the Ministry of Commerce (SECOFI), Ministry of Health (SALUD), Ministry of Energy and Government Industry (SEMIP), Ministry of Agriculture and Hydraulic Resources (SARH), and the Secretariat of Government.

56. *Id.* at art. 150.

57. Hazardous Residue Regulations, *supra* note 47, at art. 6.

58. *Id.*

59. *Id.*

60. *Id.*

61. *Id.* at art. 3.

62. *Id.* at art. 9.

handlers of hazardous waste must obtain authorization from SEDUE before beginning operations.⁶³ These facilities must also file environmental impact statements with SEDUE.⁶⁴ As an additional requirement, handling facilities must submit proposed personnel training programs, risk management programs, and the responsible technician's certification to SEDUE.⁶⁵

Generators and handlers of hazardous wastes are subject to stringent reporting and documentation requirements under the Hazardous Residue Regulations. After initial registration with SEDUE, generators must maintain a monthly log of all hazardous wastes produced by their facilities.⁶⁶ Generators must also report to SEDUE every six months on any movement of hazardous wastes during that period,⁶⁷ and movements into and out of storage areas must be regularly recorded in a log.⁶⁸ Further documentation is required for the transportation and disposal of hazardous wastes, as discussed below in Section Three.⁶⁹

In addition to reporting their activities, generators and handlers of hazardous wastes must comply with the Hazardous Residue Regulations and the applicable Ecological Technical Standards (ETS) promulgated by SEDUE for the containment and storage of hazardous waste.⁷⁰ Containers must meet ETS specifications and each container must identify the hazardous substance it contains as well as the substance's significant physical and chemical properties.⁷¹ The Hazardous Residue Regulations also specify minimum safety standards that must be met for open and closed storage areas.⁷²

3. *Procedures for the Transport and Tracking of Hazardous Wastes*

The primary focus of Mexico's hazardous waste regulations, like that of the United States' Resource Conservation and Recovery

63. *Id.* at art. 7.

64. *Id.* See also art. 11 (requiring filing with SEDUE of environmental impact statement by person responsible for work plan).

65. Hazardous Residue Regulations, *supra* note 47, at art. 12.

66. *Id.* at art. 8, § II.

67. *Id.* at art. 8, § XI.

68. *Id.* at art. 21.

69. See *infra* text accompanying notes 73-86 for a discussion of the documentation system required by Mexican Hazardous Residue Regulations.

70. Hazardous Residue Regulations, *supra* note 47, at arts. 14-20, 22. These regulations prescribe rules regarding packing, transporting, and storing hazardous wastes.

71. *Id.* at art. 14.

72. *Id.* at arts. 15-18 (storage in closed and open areas), art. 20 (storage of tailings must be in accordance with applicable NTE's). These regulations are primarily concerned with ensuring that the hazardous residues remain safely segregated from the outside world. Examples include non-permeable wells or tanks, fire prevention measures, and provisions for unexpected leaks.

Act,⁷³ is the tracking of hazardous wastes as they are transported from the generator's facility to other locations. Tracking is accomplished through a manifest system⁷⁴ in which the generator first obtains a transportation manifest form from SEDUE, fills out the form, and gives the original and two copies to the carrier.⁷⁵ When the carrier delivers the waste to its destination, the carrier delivers the original manifest and one copy to the consignee, retaining one copy for its own records.⁷⁶ The consignee then returns the original to the generator.⁷⁷ If the generator does not receive the original of any manifest that it has issued within thirty days following the date the waste was shipped, the generator must notify SEDUE.⁷⁸ Copies of the manifest must be retained by the carrier for five years from the date of transport and by the generator and the consignee for ten years.⁷⁹ The carrier and consignee must also make biannual reports of hazardous waste movements to SEDUE.⁸⁰

The Hazardous Residue Regulations also impose certain requirements on carriers to ensure the safe handling of hazardous wastes. All carriers must obtain operating authorization⁸¹ from SEDUE and register their vehicles with the Secretariat of Communications and Transport (SCT).⁸² Carriers are also charged with requesting and signing the original manifest,⁸³ verifying that wastes are properly contained,⁸⁴ and complying with occupational health and safety regulations⁸⁵ and equipment maintenance schedules.⁸⁶

4. *Procedures for the Proper Disposal of Hazardous Wastes*

Because maquiladoras are usually generators or carriers of hazardous waste and not disposal facilities, the Hazardous Residue

73. Resource Conservation and Recovery Act, Pub. L. No. 89-272, Title II (1976) (codified at 42 U.S.C. §§ 6921-6987 (1983)).

74. Hazardous Residue Regulations, *supra* note 47, at arts. 23-25.

75. *Id.* at art. 23.

76. *Id.*

77. *Id.*

78. *Id.* at art. 24.

79. *Id.* at art. 23.

80. *Id.* at art. 25.

81. *Id.* at art. 26, § I.

82. *Id.* at art. 27.

83. *Id.* at art. 26, §§ II, III.

84. *Id.* at art. 26, § IV.

85. *Id.* at art. 26, § V, art. 29, § II.

86. *Id.* at art. 29, § I.

Regulations for hazardous waste treatment, storage, and disposal, generally do not apply directly to them. However, as generators are responsible for ensuring the safe disposal of any hazardous wastes they produce, maquiladoras and other generators should be familiar with the basic requirements for proper treatment, storage, and disposal of hazardous wastes. Mexico's hazardous waste regulations allow for three types of final disposal: (1) "controlled confinement," (2) "complementary construction," and (3) "treatment compartments."⁸⁷ These three methods of disposal must be accomplished in accordance with the Ecological Technical Standards⁸⁸ promulgated by SEDUE.

Both generators and disposal facilities must file monthly reports with SEDUE detailing the circumstances of the final disposal of hazardous wastes.⁸⁹ Moreover, if any "spillage, infiltration, discharges or leakage" occurs during the handling or disposal of any hazardous wastes, the generator, along with any handling facilities involved, must notify SEDUE immediately.⁹⁰ This notice must be followed within three days by written verification, the content of which is prescribed by the Hazardous Residue Regulations.⁹¹

5. *Export of Maquiladora Hazardous Wastes*

Section VI of Article 153 of the General Environmental Law provides:

Hazardous materials or residues generated in production, transformation, manufacture, or repair processes in which primary materials have been used that were brought into Mexico under the temporary import system, including those regulated by Article 85 of the Customs Law, must be returned to the country of origin during the period that is determined therefor by SEDUE.⁹²

Thus, maquiladoras must export their hazardous wastes back to the "country of origin."⁹³ The "country of origin" requirement refers to the country from which the maquiladora obtained the raw materials

87. *Id.* at art. 31.

88. *Id.*

89. *Id.* at art. 33. This monthly report, which is filed by generators and handlers of hazardous wastes, specifies the amount, volume, and nature of the waste, the date and location of final disposal, and the method of disposal used for each type of waste.

90. *Id.* at art. 41.

91. *See id.* at art. 41, §§ I-VII. The Hazardous Residue Regulations require that the report contain information about the persons responsible for the residue, the location and nature of the spill, the cause of the spill, remedial measures taken and planned, and possible environmental damage.

92. General Environmental Law, *supra* note 5, at art. 153, § VI; Hazardous Residue Regulations, *supra* note 47, at art. 54. *See also* La Paz Agreement, *supra* note 27, and the discussion thereof, *infra* notes 105-15 and accompanying text.

93. General Environmental Law, *supra* note 5, at art. 153, § VI; Hazardous Residue Regulations, *supra* note 47, at art. 54. *See also* La Paz Agreement, *supra* note 27, and the discussion thereof, *infra* notes 105-15 and accompanying text.

that were used in the processes producing the hazardous waste.⁹⁴ Therefore, any company which has established production facilities under the maquiladora system must be aware of Mexico's special procedures for the exportation of hazardous wastes.

Chapter IV of the Hazardous Residue Regulations deals specifically with the import and export of hazardous wastes.⁹⁵ Chapter IV requires authorization from SEDUE in the form of an Ecological Waybill (Guia Ecologica) for the import or export of hazardous wastes.⁹⁶ To obtain the Ecological Waybill, an application to export must be filed at least forty-five business days before transport begins if it is the first export of that type of waste or five business days before transport for successive exports of the same waste.⁹⁷ The applicant must be a Mexican domiciliary.⁹⁸

Under the Hazardous Residue Regulations, SEDUE must grant or deny authorization within five days of receiving the application.⁹⁹ However, in actual practice SEDUE usually takes approximately three weeks to issue the authorization. SEDUE may refuse to issue the Ecological Waybill if it believes that the handling of the hazardous residues constitutes a high risk to the environment.¹⁰⁰ Before the Ecological Waybill will be issued, the applicant may be required to post a bond, deposit funds, or obtain insurance to guarantee its compliance with the terms of the Ecological Waybill and other environmental regulations.¹⁰¹ Once issued, the authorization is effective for ninety calendar days from the date of issue.¹⁰²

94. Although the Hazardous Residue Regulations do not distinguish between the "country of origin" of the raw materials and the "country of origin" of the maquiladora's parent company, article XI of the La Paz Agreement makes clear that the Hazardous Residue Regulations are construed to mean the country from which the materials were imported in-bond. See La Paz Agreement, *supra* note 27, at art. XI. In some cases, this requirement can be problematic, particularly when waste streams produced from materials of diverse national origins become commingled. For a discussion of the commingling problem and other issues raised by the "country of origin" requirements, see *infra* notes 134-37 and accompanying text.

95. Hazardous Residue Regulations, *supra* note 47, at art. 42.

96. *Id.* at art. 42.

97. *Id.* at art. 44.

98. *Id.* at art. 45. A maquiladora qualifies as a Mexican domiciliary because it is a company organized under Mexican Law.

99. *Id.* at art. 43.

100. *Id.* at art. 53. SEDUE may also revoke an authorization after it has been issued if it determines that the risks posed by the hazardous wastes have materially increased, the composition of the wastes has changed since the authorization has been issued, if the export/import activities fail to comply with the terms of the authorization, or the application for authorization contained false or misleading information. *Id.* at art. 55.

101. *Id.* at art. 46.

102. *Id.* at art. 48.

In addition to obtaining SEDUE authorization, a company exporting hazardous waste from Mexico must obtain "express consent from the recipient nation therefor, which must be proven in processing the application for the respective export."¹⁰³ This requirement is in accord with the notification provisions of the Agreement on Cooperation for the Protection and Improvement of the Environment in the Border Area, which are discussed more fully below.¹⁰⁴

C. *Executive Agreement Between United States and Mexico for Protection of the Border Environment*

Even before the hazardous waste issues raised by the maquiladoras came to the forefront, the governments of the United States and Mexico recognized the interplay between United States and Mexican environmental regulation and enforcement efforts. Acknowledging the fact that environmental pollution respects no political boundaries, former Presidents Reagan and de la Madrid signed the "Agreement Between the United States of America and the United Mexican States on Cooperation for the Protection and Improvement of the Environment in the Border Area," more commonly known as the "La Paz Agreement," on August 14, 1983.¹⁰⁵

The La Paz Agreement establishes a framework for long-term cooperation between United States and Mexican environmental authorities in addressing environmental problems in the "border area," which was originally defined as the area 100 kilometers on either side of the land and sea boundaries between the United States and Mexico.¹⁰⁶ The La Paz Agreement designates a National Coordinator for each country. The Assistant Administrator of International Activities of the Environmental Protection Agency (EPA) is the National Coordinator in the United States and the Subsecretaria de Ecologica of SEDUE performs this role in Mexico.¹⁰⁷ Representatives of the National Coordinators meet annually to discuss the implementation of the La Paz Agreement¹⁰⁸ and to call any other

103. *Id.* at art. 52.

104. *See infra* text accompanying notes 105-15 for a discussion of the U.S.-Mexico agreement to cooperate in protecting the environment along the border.

105. *See* La Paz Agreement, *supra* note 27, at preamble.

106. *Id.* at art. 4. It should be noted, however, that the La Paz Agreement and the Annexes under it effectively apply to operations outside this 200-kilometer border zone because references to materials generated "in-bond" apply to *all* maquiladoras whether located along the border or in the interior. In addition, though not technically under the auspices of the La Paz Agreement, the U.S. and Mexico entered into a separate agreement in October 1989 for cooperation in solving the environmental problems of Mexico City. *See* Agreement on Cooperation for the Protection and Improvement of the Environment in the Metropolitan Area of Mexico City, Oct. 3, 1989, United States-Mexico, 29 INT'L LEGAL MATERIALS 25-28 (entered into force Aug. 22, 1990).

107. La Paz Agreement, *supra* note 27, at art. 8.

108. *Id.* at art. 10.

meetings necessary to devise specific programs to solve environmental problems in the border area.¹⁰⁹

Since the La Paz Agreement was signed in 1983, five Annexes have been added identifying areas of particular environmental concern and outlining measures to be taken by governmental agencies in each country to address these concerns.¹¹⁰ Of primary relevance is Annex III which deals with transboundary shipments of hazardous wastes and hazardous materials.¹¹¹ According to the terms of Annex III, each nation is to enforce its own environmental laws with respect to the import and export of hazardous materials and hazardous wastes.¹¹² In addition, the coordinating agencies employ three basic cooperative methods of achieving the objectives of Annex III: (1) advance notification of shipments,¹¹³ (2) readmission of exports,¹¹⁴ and (3) compensation for damages.¹¹⁵

1. Advance Notification of Shipments

Article III of Annex III requires environmental authorities in the exporting country to give environmental authorities in the importing country advance notification of inbound shipments of hazardous wastes, so long as such notice is required by the laws of the exporting country.¹¹⁶ Thus, maquiladoras must notify the EPA of shipments of hazardous waste into the United States at least forty-five days before the planned shipment date. This notice may cover an individual shipment or a series of shipments over a twelve-month period for which the same information is applicable.¹¹⁷

The EPA notification must contain information sufficient to identify the exporter in the country of origin, including, if possible, the

109. *Id.* at art. 11.

110. *Id.* at Annexes I-V (1985-89). Annex I dealt with the construction and maintenance of wastewater treatment facilities in Tijuana. Annex II established a joint contingency planning system for coping with inland spills of hazardous substances along the border. The Work Groups established by the La Paz Agreement have also cooperated to conduct joint EPA-SEDUE inspections of maquiladoras. *See* Davis & Pérez, Hazardous-Waste Management at the Mexican-U.S. Border, 23 ENVTL. SCI. & TECH. 1208, 1210 (1989).

111. *See* Annex III to the La Paz Agreement, *supra* note 27, Regarding the Transboundary Shipments of Hazardous Waste and Hazardous Substances, Art. III, IV (dealing with hazardous wastes); Art. V-IX (dealing with hazardous substances).

112. *See* Annex III to the La Paz Agreement, *supra* note 27, at art. II.

113. *Id.* at art. III.

114. *Id.* at art. IV, XI.

115. *Id.* at art. XIV.

116. *Id.* at art. III, para. 1.

117. *Id.* at art. III, para. 2.

exporter's identification number.¹¹⁸ In addition, for each consignee and each classification of hazardous waste, the notice must list: (1) a descriptive identification of the hazardous waste to be exported, (2) the frequency of export of each type of waste, (3) the estimated total quantity of waste exported, (4) the point of entry into the United States and the mode of transportation used for shipment, (5) a description of the disposition to be made of the waste in the United States, and (6) the name and address of the consignee.¹¹⁹

According to the terms of Annex III, once the advance notification has been issued, the environmental authorities in the importing country have forty-five days to either accept or refuse the shipment.¹²⁰ The importing country, as a prerequisite to its consent, may revise the terms of the shipment described in the notification.¹²¹

2. *Readmission of Exports*

Although, as discussed above, Annex III requires the importing country's permission before hazardous wastes may be admitted, this rule may not apply if the hazardous wastes are being admitted back into the originating country. Annex III allows an importing country to return a shipment of hazardous waste "for any reason" and requires that the exporting country readmit these rejected shipments.¹²² In addition, Article XI of Annex III specifically authorizes the readmission of hazardous wastes generated by maquiladoras. Article XI provides as follows: "Hazardous wastes generated in the processes of economic production, manufacturing, processing or repair, for which raw materials were utilized and temporarily admitted, shall continue to be readmitted by the country of origin of the raw materials in accordance with applicable national policies, laws and regulations."¹²³

A reasonable interpretation of this provision of Annex III is that both nations have agreed to return hazardous wastes derived from materials imported in bond to their country of origin (i.e. the United States). This provision apparently obviates the need for EPA notification requesting permission to export and eliminates the need to wait for a letter from the EPA granting permission to import. However, because the La Paz Agreement expressly provides that the national laws and regulations and policies of each nation shall be enforced,¹²⁴ the United States Code of Federal Regulations (CFR)

118. *Id.* at art. III, para. 2(a).

119. *Id.* at art. III, para. 2(b).

120. *Id.* at art. III, para. 4.

121. *Id.* at art. III, para. 5.

122. *Id.* at art. IV.

123. *Id.* at art. XI.

124. *Id.* at art. VII.

provisions requiring notification have not been waived. Therefore, the exporting maquiladora must still notify the EPA when returning hazardous wastes to the United States, although the EPA cannot deny permission to bring the waste into the United States under the terms of Annex III. The notification merely satisfies legal formalities and facilitates EPA record-keeping and monitoring of exports.

3. *Compensation for Damages*

Article XIV of Annex III outlines measures to help protect the importing country from damages caused by transborder shipments of hazardous wastes.¹²⁵ This article allows the importing country to require, as a prerequisite to entry, evidence of insurance coverage or the posting of a bond "or other appropriate and effective guarantee" of financial responsibility.¹²⁶ Article XIV also requires that the exporting country's authorities take all practicable official action to force the exporter to remedy any damages caused "to public health, property or the environment"¹²⁷ in the importing country. These official measures, to the extent that they are effective under national laws and regulations, attempt to force the responsible parties to: (1) ship the hazardous waste back to the country of export, (2) restore, as closely as possible, the damaged ecosystem to its pre-damage state, and (3) pay appropriate compensation for any damage.¹²⁸

D. *Practical Problems with Hazardous Waste Exports*

As discussed above, the notification letter submitted to the EPA by a maquiladora generator must include a letter evidencing the consignee's consent to accept the hazardous waste.¹²⁹ Thus, the process of exporting hazardous waste to the United States really begins when the operator first contacts a United States treatment, storage, and disposal facility (TSDF) and makes arrangements for acceptance of its waste. A TSDF generally will not commit to accept a shipment of hazardous waste without a chemical analysis of the waste by a certified laboratory. However, there are no California-

125. See Annex III to the La Paz Agreement, *supra* note 27, at art. XIV. See also discussion of potential civil liabilities faced by maquiladoras *infra* notes 168-209 and accompanying text.

126. Annex III to the La Paz Agreement, *supra* note 27, at art. XIV, para. 1.

127. *Id.* at art. XIV, para. 2. The exporting country must also notify the country of import of all measures taken pursuant to paragraph 2 of article XIV.

128. *Id.* at art. XIV, para. 2(a)-(c).

129. See *supra* text accompanying notes 113-19.

certified laboratories located in Mexico and due to the well-known problems with drug trafficking in the border area, United States Customs officials have indicated that unidentified vials of chemicals will not be summarily admitted into the United States. Therefore, the importer must first have a Mexican laboratory prepare an analysis of samples before they can be shipped to certified laboratories in the United States for further analysis.

In addition to obtaining the United States consignee's consent and informing the EPA of shipments of hazardous wastes, a maquiladora generator may be directed to notify United States Customs officials in advance before the shipment crosses the international border.¹³⁰ The consignee must also provide information regarding safety precautions for handling the imported waste and the personal protective equipment required to inspect or sample the waste.¹³¹ Failure to follow these procedures may lead to lengthy delays or possible impoundment of the shipment and the transporting vehicles.

At the border crossing, United States Customs will also require certification by the consignee that the hazardous wastes do not contain any chemicals banned or restricted by the United States Toxic Substances Control Act (TSCA).¹³² The TSCA was intended to regulate the manufacture, distribution, and sale of certain chemicals rather than the disposal of such substances; however, the TSCA will also regulate these substances when they are components of waste streams in the hazardous waste import context.¹³³ Currently, the certification requirement presents no obstacle to importation because TSCA-controlled substances typically are not generated by the types of plants operated under the maquiladora program. Nevertheless, TSCA certification may become more problematic as the maquiladora economy diversifies. The environmental consequences of refusing entry to TSCA-controlled substances could then become severe as the only facilities capable of managing these wastes properly are located in the United States.

The commingling of hazardous waste streams by maquiladora generators presents another potentially troublesome issue. In many maquiladora plants, articles are manufactured from source materials originating both in Mexico and the United States. In many cases,

130. While there is no legal requirement of advance notification for hazardous cargo imports, U.S. Custom District Directors are directed to "strongly encourage all importers and exporters of hazardous cargo to present the required import/export documentation in advance in order to allow Customs personnel to review the documentation and make any necessary examination arrangements." U.S. CUSTOMS POLICIES AND PROCEDURES MANUALS, Customs Directive No. 099 5290-008 § 4.A.(3).b. (June 24, 1992) [hereinafter U.S. CUSTOMS MANUALS].

131. *Id.* at § 4.A.

132. *See* 19 C.F.R. §§ 12.118, 12.121.

133. U.S. CUSTOMS MANUALS, *supra* note 130, at § 4.A.

the wastes generated by these materials are commingled. The commingling of maquiladora hazardous wastes poses problems because different permission is required for the readmission of United States-origin waste and the importation of Mexican-origin waste. While Annex III permits the acceptance of foreign wastes by both Mexico and the United States,¹³⁴ it is unclear what level of notification is required (i.e. whether notice must go through diplomatic channels or whether it may be directly submitted to the EPA). It is also unclear whether commingled wastes will be treated under the proposed summary notification procedures for the readmission of "in bond" wastes or whether more cumbersome procedures will be established.

The most reasonable solution is to treat commingled waste the same as wastes produced from "in bond" materials. As a practical matter, it may be impossible to avoid commingling "in bond" materials with other materials in the process of manufacturing a product. In addition, it is reasonable to assume that the difficulty or impossibility of segregating waste streams was recognized by the drafters of Annex III and that they intended to provide a practical solution to this problem. This comports with the stated intent of the parties in the Preamble to Annex III: "ensur[ing] that activities associated with the transboundary shipment of hazardous waste are conducted so as to reduce or prevent the risks to public health, property and environmental quality, by effectively cooperating in regard to their export and import."¹³⁵ The refusal to admit commingled wastes or the creation of inordinately difficult, expensive, or time-consuming procedures clearly would not serve these purposes.¹³⁶ In addition, because a lack of funding has caused a shortage of disposal capacity in Mexico, maquiladora wastes not returned to the United States would either be stored at facilities that have not been properly designed or constructed to manage it, or might be dumped illegally, causing environmental destruction in both Mexico and the United States.

III. CONSEQUENCES OF ENVIRONMENTAL NONCOMPLIANCE

Along with the obvious adverse environmental effects on both sides of the border, a plethora of legal consequences may befall maquiladoras which fail to comply with Mexico's environmental

134. Annex III to the La Paz Agreement, *supra* note 27, at preamble.

135. *Id.* at preamble.

136. According to Richard Kiy, Special Assistant for U.S./Mexico Border Affairs at the EPA, these issues are currently being addressed by the U.S. Department of Customs and EPA in connection with talks regarding the harmonization of customs tariffs.

regulations. Noncomplying maquiladoras may face a variety of statutory penalties¹³⁷ enforced by SEDUE. They may also be subject to substantial damage awards¹³⁸ in favor of private parties who are injured due to the improper management of hazardous waste. In addition, there are several possible legal theories that may be invoked to impose liability on maquiladoras based on United States environmental laws.¹³⁹ Each of these potential bases for liability is discussed in greater detail below.

A. Administrative Penalties, Criminal Penalties, and Public Denunciations Under Mexican Environmental Law

Maquiladoras that violate provisions of Mexico's General Environmental Law or the Hazardous Residue Regulations pertaining to hazardous waste may be subject to statutory sanctions.¹⁴⁰ These sanctions may take the form of administrative penalties imposed by SEDUE,¹⁴¹ criminal proceedings prosecuted by SEDUE,¹⁴² or "public denunciations" initiated by private citizens and pursued by SEDUE.¹⁴³ A number of maquiladoras have recently received such administrative sanctions for failing to comply with Mexico's hazardous waste regulations.¹⁴⁴ The substantial number of recent administrative actions indicates SEDUE's growing commitment to enforcing Mexico's environmental legislation.

137. For a discussion of the statutory penalties which may be imposed by SEDUE for noncompliance, see *infra* text accompanying notes 140-56.

138. For a discussion of the tort liabilities to which maquiladoras may be subject, see *infra* text accompanying notes 169-73.

139. For a discussion of possible theories of liability under U.S. environmental legislation, see Scott Peters' article printed in pages ____ of this volume.

140. See General Environmental Law, *supra* note 5, at art. 171-88.

141. For a discussion of the administrative penalties that may be imposed by SEDUE, see *infra* text accompanying notes 145-56.

142. For a discussion of the criminal sanctions available to SEDUE, see *infra* text accompanying notes 157-63.

143. For a discussion of the public denunciation procedure, see *infra* text accompanying notes 164-68. In addition to these administrative sanctions, SEDUE is also authorized to give technical opinions to private party plaintiffs alleging damages caused by noncompliance with Mexico's hazardous substance regulations. See Hazardous Residue Regulations, *supra* note 47, at art. 62.

144. According to Ronald E. Pettis, the Chairman of the Committee on the Environment of the Border Trade Alliance, SEDUE has imposed fines of up to \$70,000 (in U.S. currency) for noncompliance with Mexico's environmental laws. More recently, SEDUE has also closed, either temporarily or in some cases permanently, several facilities or portions of facilities which were particularly egregious offenders. According to Richard Kiy, from 1988 to 1991 over 1,000 polluting industrial plants in Mexico were closed temporarily because they did not fully comply with the government's existing environmental regulations. By April 30, 1991, 82 factories had been permanently closed, including a large PEMEX oil refinery in Mexico City.

1. Administrative Sanctions

Both the General Environmental Law and the Hazardous Residue Regulations¹⁴⁵ authorize SEDUE to impose administrative sanctions on violators of Mexico's environmental laws.¹⁴⁶ These administrative penalties may consist of a fine equal to 20,000 days at the current general minimum wage in the Federal District,¹⁴⁷ administrative arrest for up to 36 hours, or temporary or final closure of the offending facility.¹⁴⁸ In deciding which penalties should be imposed, SEDUE must take into account the seriousness of the violation, the financial resources of the violator, and the violator's history of previous violations.¹⁴⁹ SEDUE may also consider whether the violator has remedied the environmental injuries caused by his conduct.¹⁵⁰ A facility may be ordered to be closed only if it willfully violated the regulations for handling of hazardous materials with knowledge of the dangers posed by those materials.¹⁵¹ SEDUE may also revoke any authorizations or licenses it granted pursuant to the Hazardous Residue Regulations.¹⁵²

If SEDUE imposes fines or other sanctions for a violation, the alleged violator may file an appeal with the administrative unit which rendered the decision within fifteen days after the notice of violation is issued.¹⁵³ If the appeal is filed within this fifteen-day period, SEDUE may suspend the imposition of penalties if certain criteria

145. See generally General Environmental Law, *supra* note 5, at art. 8; Hazardous Residue Regulations, *supra* note 47, at art. 7.

146. See General Environmental Law, *supra* note 5, at art. 171; Hazardous Residue Regulations, *supra* note 47, at art. 58.

147. The minimum wage rate is currently \$3.83 per day.

148. See *supra* note 144.

149. General Environmental Law, *supra* note 5, at art. 173. If there is recidivism involved, which is defined as more than two violations in the same year, SEDUE may impose up to two times the specified maximum amount. *Id.* art. 171.

150. General Environmental Law, *supra* note 5, at art. 171.

151. Hazardous Residue Regulations, *supra* note 47, at art. 58, § II. If SEDUE orders temporary or partial closure of the facility, Article 174 of the General Environmental Law also requires a full report of the on-site investigation conducted by SEDUE. General Environmental Law, *supra* note 5, at art. 174.

152. Hazardous Residue Regulations, *supra* note 47, at art. 59; see also General Environmental Law, *supra* note 5, at art. 172 (authorizing revocation of authorizations or licenses in addition to other administrative sanctions).

153. General Environmental Law, *supra* note 5, at arts. 176, 177. The appeals document must specify the appellant's name and domicile, the action appealed from, the agency taking such action and how the appellant learned of the action, the injuries allegedly suffered by the appellant, all evidence offered in support of the appeal, and a due guaranty of the tax interest. *Id.* at art. 178.

are met.¹⁵⁴ In essence, these criteria constitute a balancing test, weighing the potential injury to the public interest if sanctions are not imposed against the severity of the injury caused to the violator's business if the sanctions are imposed.¹⁵⁵ If SEDUE does not agree to suspend sanctions and the violator does not cure the violation within the time specified in the notice of violation, the fine may be increased for each day that the violation continues, up to a maximum equal to 20,000 days at the current Federal District minimum wage.¹⁵⁶

2. Criminal Penalties

The General Environmental Law provides that Mexico may impose criminal sanctions for violations of environmental standards "which cause serious injury to public health, flora, fauna or ecosystems."¹⁵⁷ The statute mandates a prison sentence of three months to six years and a fine equal to between 100 and 10,000 days at the current Federal District minimum wage.¹⁵⁸ If the violator engages in hazardous activities in a population center, an additional three years of prison and a maximum fine of 20,000 days at the current Federal District minimum wage may be imposed.¹⁵⁹

Virtually any conduct relating to the generation or handling of hazardous substances or hazardous wastes, if done without authorization from SEDUE or in violation of the terms of such authorization, will result in criminal sanctions if the violation causes serious injuries to public health or the environment.¹⁶⁰ Under these circumstances, the failure to obtain authorization from SEDUE or a violation of the terms of a SEDUE authorization subjects the violator to three months to six years of imprisonment and a fine ranging from 1,000 to 20,000 days at the current Federal District minimum wage.¹⁶¹ According to the literal terms of the General Environmental

154. *Id.* at arts. 179, 180.

155. *Id.* at art. 180. That section states:

Execution of the challenged decision may be suspended when the following requirements are complied with:

- I. The petitioner so requests;
- II. Injury to the general public would not result;
- III. Recidivist infractions are not involved;
- IV. That if the decision were executed, it would cause injury difficult to remedy to the appellant; and
- V. The tax interest is guaranteed.

156. *Id.* at art. 171; Hazardous Residue Regulations, *supra* note 47, at art. 60.

157. General Environmental Law, *supra* note 5, at art. 183. Unless an individual case indicates "flagrant criminality," SEDUE must make the formal accusation that initiates these criminal procedures. *Id.* at art. 182.

158. *Id.* at art. 183.

159. *Id.*

160. *Id.* at art. 184. This provision also encompasses the import or export of hazardous materials or hazardous wastes in violation of the authorization from SEDUE.

161. *Id.* There may be different penalties for violations involving toxic or

Law, the imposition of these criminal penalties is not discretionary,¹⁶² although the statute does provide for penalties proportionate to the gravity of the violation.¹⁶³

3. *Public Denunciations*

Mexico's General Environmental Law also allows private citizens to initiate a SEDUE investigation into alleged environmental violations.¹⁶⁴ The person simply makes a public denunciation alleging a "fact, act or omission that produces ecological imbalance or injury to the environment"¹⁶⁵ and providing sufficient information to identify the source of the violation.¹⁶⁶ Once SEDUE receives the denunciation, it must investigate the alleged violation and advise the informer of the outcome of that investigation within forty-five business days.¹⁶⁷ If SEDUE verifies that there has been a violation, it may pursue appropriate criminal and administrative sanctions and must advise the informer of the measures it takes.¹⁶⁸

B. Potential Civil Liability Associated with Improper Management of Hazardous Waste

Although the civil penalties imposed for noncompliance with Mexican environmental regulations may seem severe,¹⁶⁹ their significance pales in comparison to the potentially exorbitant damages a maquiladora may incur in toxic tort litigation arising out of the improper management of hazardous waste.¹⁷⁰ The most likely scenario for such litigation involves a spill or seepage of hazardous waste under the maquiladora's control that results in personal injuries or property damage to Mexican citizens. The Mexican citizens might then bring an action against the maquiladora, its parent corporation, or against

hazardous substances that are regulated by the General Health Law of Mexico because these substances pose an "imminent risk to human health."

162. All of the sections of the General Environmental Law imposing criminal penalties state that these penalties "shall be imposed" if such violations occur. *See* General Environmental Law, *supra* note 5, at arts. 182-87.

163. *See id.*

164. *See id.* at arts. 189-94.

165. *Id.* at art. 189.

166. *Id.* at art. 190.

167. *See id.* at art. 193.

168. *Id.* at art. 192.

169. For a discussion of the civil and criminal penalties imposed by SEDUE under the General Environmental Law, see *supra* notes 140-63 and accompanying text.

170. Toxic tort cases may result in a broad range of compensatory damages as well as punitive damages.

both in a court in the parent's country.¹⁷¹ Such toxic tort litigation related to hazardous wastes¹⁷² has become commonplace in the United States, where the parents of most maquiladoras reside.

Since Scott Peter's article on United States environmental law¹⁷³ discusses toxic tort liability and defenses, general tort principles are not addressed in this Article. Instead, this section analyzes the choice of law and choice of forum issues likely to be raised in a suit brought in the United States courts by Mexican plaintiffs. This section also briefly discusses the implications if a court decides to apply Mexican law in a toxic tort suit against a United States maquiladora.

1. Choice of Forum and Choice of Law

If a toxic tort suit is instituted by Mexican citizens against a maquiladora company in a United States court, the defendant maquiladora might argue that a United States court is an inappropriate forum. Even if a United States court takes jurisdiction of the case, it is unclear whether the laws of the United States or of Mexico should apply.

a. Forum Non Conveniens

The doctrine of forum non conveniens allows a defendant to seek dismissal of a suit brought in a federal court which is a proper forum, but is nonetheless inappropriate because another forum has a closer connection with the dispute.¹⁷⁴ When the proposed alternative forum is a court in another country, the threshold inquiry is whether the foreign court provides an adequate alternative forum.¹⁷⁵ In this regard, the United States court primarily considers whether the defendant is amenable to process in the foreign jurisdiction.¹⁷⁶ As long as the transfer to an alternative forum will not entirely deny the plaintiff any recovery, the effect of applying the alternative forum's law cannot be considered a factor.¹⁷⁷ The United States court will

171. G. MARRERO, ENVIRONMENTAL LAW GROUP HANDBOOK 65 (Apr. 27, 1989) (prepared for seminar).

172. M. DORE, THE LAW OF TOXIC TORTS § 3.05 (Sept. 1989).

173. Printed in pages ____ of this volume.

174. See *Gulf Oil Corp. v. Gilbert*, 330 U.S. 501, 507 (1947).

175. See *Piper Aircraft Co. v. Reyno*, 454 U.S. 235, 254 n.22 (1981).

176. See *id.* Under FED. R. CIV. PRO. 4, service of process may be made upon those outside of the United States if authorized by federal and, in some cases, state law. See also *Exec. Comm. Members v. Union of India*, 484 U.S. 871 (1987); *In re Union Carbide Corp. Gas Plant Disaster at Bhopal, India* in December 1984, 634 F. Supp. 842, 852 (S.D.N.Y. 1986), *aff'd in part, modified in part*, 809 F.2d 195 (2d Cir. 1987).

177. *Piper*, 454 U.S. at 247. The Court stated: "The possibility of a change in substantive law should ordinarily not be given conclusive or even substantial weight in the forum non conveniens inquiry." *Id.*

consider whether the alternative forum has adequate safeguards to ensure minimal due process protection.¹⁷⁸

If the United States court determines that the foreign court constitutes an adequate alternative forum, it will then apply a balancing test, taking into consideration a variety of private and public interest factors.¹⁷⁹ The private interest factors are designed to promote the convenience of the parties. The court therefore evaluates factors such as the accessibility of sources of evidence, the proximity of witnesses, and the availability of compulsory service of process.¹⁸⁰ The court will also consider public policy rationales. Public policy factors include allocation of the burden of judicial administration, each forum's interest in resolving the dispute, and each forum's familiarity with the applicable rules of law.¹⁸¹

For example, the 1984 Union Carbide gas plant disaster in Bhopal, India, was the subject of a number of toxic tort suits. That incident involved a leak of poisonous gas from an American-owned insecticide plant in India that killed over 1,000 people.¹⁸² In one case, a United States District Court granted the defendant's motion to dismiss on the basis of forum non conveniens largely on the strength of India's interest in litigating the dispute.¹⁸³ In particular, the court focused on the environmental regulations and periodic inspections of the Bhopal plant by Indian government authorities and the superior ability of the Indian courts in applying their own country's law.¹⁸⁴ The court also recognized India's "very strong interest in the aftermath of the accident which affected its citizens on its own soil."¹⁸⁵

The *Union Carbide* case illustrates several of the issues that a maquiladora will face if confronted with similar litigation over a toxic tort. The defendant should carefully consider the relative merits of

178. *Id.*

179. These factors are set out in *Gulf Oil Corp.*, 330 U.S. at 508 and *Union Carbide*, 634 F. Supp. at 852-66. The private interest concerns include the relative ease of access to sources of proof, access to witnesses, and the ease of arranging for a view of the premises around which the litigation centers. The public interest concerns include administrative difficulties (such as a multitude of witnesses and documents and translation difficulties), the interests of each country in adjudicating the dispute, and whether foreign law must be applied.

180. *See Gulf Oil Corp.*, 330 U.S. at 508.

181. *See id.* at 508-09.

182. N.Y. Times, December 5, 1984, at 1, col.6

183. *Union Carbide*, 634 F. Supp. at 865.

184. *Id.* at 863-65.

185. *Id.* at 867.

the United States and Mexican court systems before trying to dismiss a case filed in a United States court on the basis of *forum non conveniens*.

Although dismissal on the ground of *forum non conveniens* often works to the defendant's advantage,¹⁸⁶ this strategy may have backfired in the Bhopal litigation. The Indian courts to some extent avoided the delays caused by the heavily backlogged Indian court calendars by awarding \$270 million in "interim damages" based on the government's demonstration of a *prima facie* case in its pleadings.¹⁸⁷ In addition, the Indian government brought criminal homicide charges against Union Carbide and nine of its principals.¹⁸⁸ Consequently, Union Carbide was pressured into agreeing to a \$470 million settlement, in return for the dismissal of all criminal charges.¹⁸⁹ Although many Indian citizens and other observers thought Union Carbide had escaped very lightly,¹⁹⁰ the settlement has been reopened for review at the behest of the new Indian government, which has vowed to seek damages in the amount of \$3 billion and the reinstatement of criminal charges.¹⁹¹ Thus, a settlement which purported to be final has far from resolved the dispute.

b. Choice of Law

Even if a United States court takes jurisdiction of a toxic tort case brought by a Mexican plaintiff based on events occurring in Mexico, the court may decide to apply Mexican law. In the traditional choice of law analysis, the governing law in a tort case is the law of the jurisdiction in which the tort occurred.¹⁹² However, many states now apply "interest analysis" to resolve choice of law issues.¹⁹³ When

186. See, e.g., G. MARRERO, *supra* note 171, at 69, asserting that Union Carbide's primary motives in moving for dismissal were avoidance of generous damage awards by American juries and the corresponding advantageous limitations on damages under Indian law.

187. See 2 Toxics L. Rptr. 809 (1987). The amount of interim damages was subsequently decreased to \$193 million. See *id.* at 1199. The Indian Supreme Court declined to review these interim damage awards, 3 Toxics L. Rptr. 635 (1988), although they were later negated by the final settlement. See *id.* at 1157 (1989).

188. See 2 Toxics L. Rptr. 761 (1987).

189. See 3 Toxics L. Rptr. 1157 (1989).

190. See *id.* Melvin Belli, an attorney formerly representing one of the plaintiffs, concluded that Union Carbide "got off criminally cheap." *Id.*

191. See 3 Toxics L. Rptr. 1189; 4 Toxics L. Rptr. 905 (1990); 4 Toxics L. Rptr. 946.

192. See generally Annotation, *Modern Status of Rule That Substantive Rights of Parties to a Tort Action Are Governed By the Law of the Place of the Wrong*, 29 A.L.R. 3d 603, 613-14 (1970).

193. The states applying the "interest analysis" include Alaska, Arizona, California, Indiana, Iowa, Kentucky, Minnesota, Mississippi, New Hampshire, New Jersey, New York, Oregon, Pennsylvania, Rhode Island, and Wisconsin. Under the interest analysis, the public interest of each country in adjudicating the dispute is considered. Relevant factors include the opportunity to vindicate the suffering of the injured citizens, the

applying interest analysis to a case, the court evaluates each state's or country's relative interest in resolving the dispute.¹⁹⁴

In *Hernandez v. Burger*,¹⁹⁵ a California case applying interest analysis, a Mexican plaintiff brought suit against California defendants for injuries caused by an automobile accident that occurred in Mexico.¹⁹⁶ The California court found that the forum had no legitimate interest in applying United States law.¹⁹⁷ By contrast, the court stated that Mexico had a compelling interest in regulating contact that occurred within its borders and that Mexico's limited damages law, as applied to non-resident defendants, might serve a legitimate purpose in promoting the tourism industry in Baja California.¹⁹⁸ Although the *Hernandez* court recognized that Mexican law severely limited the amount of damages recoverable, it found that:

no legitimate interest or policy of the State of California would be served by the application of its unlimited damages rule because the plaintiff is a resident and citizen of Mexico, the accident occurred in Mexico, and the only connection California has with the case is that the defendants happened to be California residents and that California is the forum.¹⁹⁹

Therefore, the court chose to apply Mexican law, producing a radically different and very unfavorable outcome for the plaintiff.²⁰⁰

Because the handling and disposal of hazardous wastes may have environmental implications on both sides of the border, American courts might consider the United States' interest in protecting its natural resources significant enough to warrant application of the forum state's law, especially if the case involved the transborder shipment of hazardous materials or hazardous wastes. Moreover, because the maquiladora system confers significant financial benefits on United States border states, courts in those states might recognize a legitimate interest in promoting the continued existence and safe

country's interest in regulating activities in its own country, the possibility of developing a "double-standard" of liability for multi-national corporations, and the opportunity to create precedent that will bind all multi-nationals everywhere. *Union Carbide*, 634 F. Supp. at 862-66.

194. See, e.g., *Reich v. Purcell*, 67 Cal. 2d 551, 432 P.2d 727 (1967); *McSwain v. McSwain*, 420 Pa. 86, 215 A.2d 677 (1966).

195. *Hernandez v. Burger*, 102 Cal. App. 3d 795, 162 Cal. Rptr. 564 (1980).

196. *Id.* at 797, 162 Cal. Rptr. at 565.

197. *Id.* at 800, 162 Cal. Rptr. at 566-67.

198. *Id.* at 802, 162 Cal. Rptr. at 568. See also *Browne v. McDonnell-Douglas Corp.*, 504 F. Supp. 514 (N.D. Cal. 1980), in which a federal district court denied the imposition of joint and several liability under California law because of Yugoslavia's interest in "protecting foreign business firms engaged in trade with Yugoslavia against suffering disproportionate liability for injuries caused by Yugoslav parties." *Id.* at 519.

199. *Hernandez*, 102 Cal. App. 3d at 799, 162 Cal. Rptr. at 566.

200. *Id.* at 804, 162 Cal. Rptr. at 569.

operation of the maquiladora facilities. For these reasons, a court applying interest analysis might conclude that the law of the United States forum should apply to injuries caused by exposure to hazardous waste even if those injuries were suffered in Mexico by Mexican plaintiffs.

2. *Future Theories of Liability Under United States Law*

Although the United States clearly does not have jurisdiction to enforce Mexico's environmental laws, a maquiladora is potentially subject to liability in certain circumstances under United States laws for illegally dumping hazardous wastes in Mexico. For example, a maquiladora operator may be criminally liable under United States law for illegal dumping on the theory of de facto exportation.²⁰¹ Because the hazardous waste generated by a maquiladora plant is deemed a United States product that has never been formally imported into Mexico, illegal dumping may constitute an illegal export of hazardous waste from the United States into Mexico.²⁰²

Illegal exportation of hazardous waste may result in administrative penalties under the Resource Conservation and Recovery Act (RCRA),²⁰³ including fines of \$50,000 per day of violation or up to two years of imprisonment.²⁰⁴ If wastes are illegally dumped by a maquiladora with knowledge that such dumping "places another person in imminent danger of death or serious bodily injury," the maquiladora may be fined up to \$250,000, imprisoned for up to 15 years, or both under RCRA,²⁰⁵ based on the de facto exportation theory.

Furthermore, a maquiladora which attempts to pay "mordida" (a bribe) to the Mexican authorities to avoid compliance with Mexico's hazardous waste regulations violates the United States Foreign Corrupt Practices Act.²⁰⁶ The Foreign Corrupt Practices Act prohibits the promise of money or other gifts to influence any act of a foreign official or to persuade a foreign official to use his influence in favor of a United States company.²⁰⁷ Violation of this Act may result in fines of up to \$2 million and civil penalties of up to \$10,000 for the

201. Resource Conservation and Recovery Act, 42 U.S.C. § 6938(a)(2) (1983).

202. With respect to the export of hazardous wastes from the U.S., the Resource Conservation and Recovery Act of 1976 merely provides that the U.S. generator must comply with the terms of any applicable international agreements. *See* 42 U.S.C. § 6938(a)(2) (1983). The U.S. generator must also report any exports to the EPA. *See id.* at § 6938(g).

203. Resource Conservation and Recovery Act, 42 U.S.C. § 6938(a) (1983).

204. 42 U.S.C. § 6928(f) (1983).

205. *Id.* at § 6928(e).

206. 15 U.S.C. §§ 78dd-1, 78dd-2 (1988).

207. *See id.* at §§ 78dd-1(a)(1), 78dd-2(a)(1).

United States parent company.²⁰⁸ Any officer, director, shareholder, or employee of the company may be fined a maximum of \$100,000, imprisoned for up to five years, or both for willful violations of the Act.²⁰⁹ Moreover, the statute expressly prohibits indemnification of these persons by the company.²¹⁰ Thus, bribery of a Mexican authority may result in significant liability on both sides of the border.

IV. THE FUTURE OF MEXICAN ENVIRONMENTAL REGULATION AND THE EFFECT OF THE NORTH AMERICAN FREE TRADE AGREEMENT

The United States and Mexico have agreed in principle on a free trade agreement (commonly referred to as the North American Free Trade Agreement or NAFTA) which would lessen or eliminate many of the remaining tariff barriers between the two countries.²¹¹ By eliminating many of the artificial trade barriers currently in place, trade between the United States and Mexico should accelerate greatly, increasing efficiency, employment, and income on both sides of the border.²¹² Despite NAFTA's focus on trade, many other trans-border issues are being discussed concurrently, one of the most controversial of which is the environment.

Many on both sides of the border are concerned that opening trade between the countries will result in United States companies moving their polluting activities to Mexico to take advantage of Mexico's less stringent environmental policies.²¹³ Some members of the United States Congress are particularly vocal in expressing their concern over the border environment and insist that environmental protection measures accompany the trade agreement.²¹⁴ Recognizing the importance of this issue, the United States and Mexico have agreed to address environmental issues in the NAFTA talks.²¹⁵

208. *Id.* at § 78dd-2(g).

209. *Id.*

210. *Backers Start Big Push for NAFTA*, San Diego Union, Aug. 14, 1992, at C1.

211. BANK OF AMERICA, ECONOMIC & BUSINESS OUTLOOK (September/October, 1991).

212. *Id.*

213. Hickox, *North American Free Trade Agreement*, States News Service (October 29, 1991).

214. Over 70 members of the U.S. Congress and Senate recently sent President Bush a letter insisting that environmental protection measures be submitted to Congress before it begins debate on NAFTA. *Swing Votes in NAFTA Negotiations Call for Environmental Protections*, Int'l Trade Daily (BNA) (November 5, 1991).

215. Treutman, *Major Obstacles on North American Free Trade Seen*, Reuters

Most of the concern over the environment centers on Mexico's enforcement of its environmental laws. As discussed previously, although Mexico's laws are as stringent as those in the United States in many respects, Mexico has failed to adequately enforce many of these laws, leading to highly publicized examples of pollution. Recent increases in funding for enforcement activities and a new will to shut down the worst offenders evidence Mexico's new willingness to resolve its past failures.²¹⁶

Operating in the background of the NAFTA discussions is a joint effort between the EPA and SEDUE known as the Integrated Environmental Plan for the Mexico-United States Border Area (the Plan). The Plan is being developed pursuant to the La Paz Agreement and is intended to address numerous environmental problems within 100 kilometers of the border.²¹⁷ A working draft of the Plan was released in August of 1991 and was followed by public hearings in the United States and Mexico.²¹⁸ During these hearings, the draft Plan was criticized for its lack of specificity and enforcement funding.²¹⁹ Although the draft Plan does lack many specifics, it represents a significant step toward a coordination of efforts between the EPA and SEDUE. Submission of a final Plan to the two presidents is expected by January 1992.²²⁰

CONCLUSION

As one of Mexico's most significant business developments of the last thirty years, the maquiladora program has had its share of difficulties, not the least of which relates to environmental concerns. For any Mexican manufacturer, environmental issues must be a primary concern in light of Mexico's recent efforts to increase its enforcement of environmental laws. These issues are even more relevant for the maquiladoras, who must comply not only with Mexican laws and regulations but, in many cases, with the laws and regulations of their parent's country. Additionally, the recent concern in the United States over Mexican pollution related to the NAFTA negotiations is

News Reports (October 28, 1991).

216. See *supra* note 145.

217. *Mexico Announces Plan to Protect Environment Along Northern Border*, Env't Daily (BNA) (October 29, 1991); *EPA Administrator Unveils Draft Plan to Stop Pollution Along U.S.-Mexico Border*, Env't Daily (BNA) (August 2, 1991).

218. *Reily Unveils Draft Cooperative Plan to Control Pollution Along U.S.-Mexico Border*, Env't Daily (BNA) (August 14, 1991).

219. McDonnell, *Environmental Fears Voiced on Free-Trade Plan; Border: Critics Say Proposals to Protect the Border Environment After a U.S.-Mexico Free-Trade Accord Area Fare*, L.A. Times (San Diego ed.), September 24, 1991, at B1, col. 5; LePage, *Critics Blast U.S.-Mexico Plan on Environment*, SAN DIEGO BUS. J., September 30, 1991, at 3.

220. *Mexico Announces Plan to Protect Environment Along Northern Border*, Env't Daily (BNA) (October 29, 1991).

a further indication of why the environment must necessarily rank as one of the largest issues facing maquiladoras in the next decade.

In addition to questions regarding Mexico's future environmental enforcement efforts, maquiladoras with American parents must address the question of where to dispose of their hazardous waste. Further cooperation between the United States and Mexico is required in order to define more clearly the documentation and permission necessary to transport hazardous materials across the border. Particularly troubling is the issue of commingled waste which is currently being considered by the United States Department of Customs and the EPA in connection with talks regarding the harmonization of customs tariffs. Finally, one of the largest questions is how NAFTA will impact Mexico's environmental policies. While environmental issues are included in the NAFTA discussions and the United States delegation is under some pressure from Congress to include environmental provisions in the agreement, the exact result of these talks is far from evident.

Despite all of the concerns about the effect of Mexico's environmental policies on maquiladora waste, the changes to date have created new business opportunities for foreign entrepreneurs. The need for an industrial waste management infrastructure has allowed American companies to establish recycling, treatment and disposal plants, toxic waste incinerators, hazardous waste landfills, chemical laboratories, and hazardous waste transportation companies to better serve the maquiladoras.

Although the health of the maquiladora industry may be threatened by hazardous waste issues, the dramatic growth rate of maquiladora industries in recent years, the promise of even more open trade under NAFTA, and the increasing efforts by maquiladoras to comply with Mexico's environmental laws foreshadow a prosperous future for the maquiladora program. In light of Mexico's recent increased enforcement efforts, it appears that only those companies that relocate to Mexico in order to evade United States hazardous waste laws will suffer the consequences of Mexico's nascent environmental awareness.

