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CONTAMINATED SITES

Most Latin American countries have not dealt with the issue of historic contamination in any comprehensive way. The authors of this article say that is changing. Perhaps now that core environmental programs are in place, the authors say legislators and regulators are in a position to begin grappling with the effects of several decades of rapid industrialization without adequate waste management capacity. The purpose of this article is to provide a brief survey of the status of contaminated site regulations in Argentina, Brazil, Chile, Colombia, Ecuador, Mexico and Peru, primarily as a way to reflect how very dynamic this area of law has become and to highlight the jurisdictional differences playing out in the region.

Emerging Environmental Regimes for Contaminated Land in Latin America

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Most Latin American countries have instituted environmental legal regimes for a broad range of industrial operations and many are quite rigorous and actively enforced. However, most of these countries have not dealt with the issue of historic contamination in any comprehensive way and certainly not in the same vein as the United States. That is rapidly changing. Perhaps now that core environmental programs are in place, legislators and regulators are in a position to begin grappling with the combined effects of several decades of rapid industrialization but inadequate waste management capacity.

Programs in the region are greatly disparate in their scope, regulatory sophistication, and implementation,

and are highly dynamic. For example, Mexico has a comprehensive site remediation program that includes property transfer requirements, while Venezuela's standards remain largely rudimentary and are not covered in this article. Several jurisdictions, such as Argentina and Peru, have sector-based standards for significant industrial activities, such as mining or petroleum operations, but have not yet developed widely applicable programs. Brazil has strong state programs, but its national program remains a set of general policies. Many of the countries have pending legislation or regulatory proposals, signaling likely change to existing programs in the future. Key issues of "how clean is clean" and post-remediation land use, such as brownfields initiatives, are just now beginning to be addressed. None of the countries has yet to deal comprehensively with the is-

sue of financing historic contamination at abandoned sites.

The purpose of this article is to provide a brief survey of the status of contaminated site regulations in Argentina, Brazil, Chile, Colombia, Ecuador, Mexico and Peru, primarily as a way to reflect how very dynamic this area of law has become and to highlight the jurisdictional differences that are playing out in the region. In light of the number of jurisdictions covered in the article, only the main programmatic elements of existing initiatives could be outlined. This article should not be viewed as or relied upon as a comprehensive resource for the numerous issues attendant to managing contaminated property in any specific country nor as a substitute for consulting local counsel.

Finally, while efforts were made to scope potential liabilities for contaminated properties, it bears emphasizing that all of the countries surveyed have general measures that could apply to contaminated sites, for example, water and natural resource codes, civil code causes of action such as nuisance and tort, as well as criminal laws. In addition, because environmental protection standards are typically set forth in country constitutions, special civil actions such as *amparo* (loosely akin to a civil rights action) could be brought for environmental claims in many of these countries. Discussion of these kinds of constitutional claims was omitted from the article. Generally speaking, the range of potential liabilities or claims that could be brought to redress contaminated property or environmental harm in all jurisdictions can be quite broad, at least theoretically, although the use or enforcement of collateral sources of liability has not generally been robust as a regional matter.

ARGENTINA

Legal Framework

Argentina lacks a national framework law or program for comprehensively addressing contaminated sites. The Argentine Constitution provides for a broad polluter-pays principle under which environmental damage generally gives rise to an obligation to repair the harm. (Constitution, Art. 41) Similarly, the 2002 General Law of the Environment provides that the party (generator) responsible for current or future harm to the environment is liable for the costs of any preventive and corrective actions. (Law 26.675/2002, Art. 4)

In conjunction with these broad liability principles, the Argentine national government has authority to set so-called "minimum environmental standards." (Constitution, Art. 41; Law 26.675/2002). Although the scope of such national standards has been somewhat controversial regarding their applicability to the twenty-three provinces and the capital city, the federal government has exercised its "minimum standards" authority and recently proposed such a standard for contaminated sites. It bears emphasizing that any national efforts, legislative or regulatory, will likely be complicated by the country's strong federalist system under which the provinces often wield more authority than the national government.

A few sector-specific national laws may regulate certain types of contaminated sites, although these standards would not be broadly applicable. Perhaps the most notable among these is the Mining Code, addressed briefly below.

Agency Jurisdiction

Argentina's federal environmental agency (the Secretary of the Environment and Sustainable Development or SAyDS) has jurisdiction to preserve the environment and set national policies and has used this authority to begin developing a national contaminated site program. (See Constitution, Art. 41 and Decree 1919/06)

Despite the absence of an established national program, SAyDS has been active in requiring clean up of the country's most polluted waterways as part of the Integral Plan for Environmental Clean-Up of the Matanza Riachuelo Watershed (*Plan Integral de Saneamiento Ambiental de la Cuenca Hídrica Matanza Riachuelo*). This plan is the result of a groundbreaking citizen suit and decision from the Argentine Supreme Court ordering the government to develop a management plan. By August 2008, SAyDS had inspected over 3,600 sites and sanctioned hundreds of companies. As part of these enforcement actions, SAyDS is inventorying contamination at scores of sites along the Riachuelo. Information developed in this inventory will likely inform any national program that is ultimately implemented.

Status of National Program and Inventories

National Contaminated Site Program. In 2006, SAyDS called for the creation of the Program for Environmental Management of Contaminated Sites (*Programa para la Gestión Ambiental de Sitios Contaminados* or Spanish-acronym PROSICO). See Resolution 515/2006. The resolution calls for the following government actions:

- Develop a National Inventory of Potentially Contaminated Sites
- Categorize and preliminarily prioritize the potentially contaminated sites
- Create a National Plan for Recovery of Contaminated Sites and Contamination Prevention
- Form a legal framework for management of these sites, and
- Establish a national system for environmental enforcement and surveillance of contaminated and restored sites.

(Resolution 515/06, Art. 6).

Following adoption of the resolution, SAyDS developed a five-year timeline for implementing the program and held at least one of the interjurisdictional workshops called for by the resolution. See "National Program for Environmental Management of Contaminated Sites." However, initial momentum from 2006 has waned and many of the meetings originally scheduled have not been held.

This may change soon. Current Secretary of the Environment, Dr. Romina Piccolotti, well-known for her strong enforcement positions, has publicly promised to launch a National Plan for Contaminated Site Remediation. (Comments at 52nd Ordinary Assembly of the Federal Council on the Environment (COFEMA) (March 2008)). For now, however, no plan or dates have been released.

Bill Proposing National Program for Management of Contaminated Sites. Separately, in 2007, a bill was introduced in the Chamber of Deputies, Argentina's lower house, calling for national minimum standards on polluted land. (See Bill 0853-D-2007.) Under the bill, the

federal government would create a National Program for Management of Contaminated Sites, focusing on a number of key sectors: sanitary landfills, petroleum and petrochemical refineries, mines, pulp and paper mills, tanneries, cement plants, foundries, galvanoplasty or chroming facilities, certain airports, and wastewater treatment plants, among others. (Bill, Art. 9, Annex I).

Unlike the SAyDS program, the bill also outlines core liabilities for contaminated sites and would require so-called “responsible parties,” defined as those entities or persons who own activities located on potentially contaminated sites, to carry out actions, in particular remediation, required by the authorities until all the phases called for in the law had been completed (Bill, Arts. 4, 19). Environmental authorities would select remediation options (Art. 21) and determine what types of land use would be appropriate upon completion. (Art. 26).

Importantly, unlike other regional initiatives, the Bill provides for key exemptions for innocent landowners. Responsible parties would be exempt from remediation liability when they could demonstrate that: (a) activities carried out prior to the new law would not have caused contamination according to the standards in place at that time or (b) involved prior contamination with values or levels that clearly show the current owner or holder could not have aggravated the contamination. (Art. 20) In such a case, the state would take on responsibility for the remediation. (Art. 20). As with all pending legislation, it is difficult to predict this bill’s chances of success. For now it remains before the Environment and General Legislation Committees in the Chamber of Deputies.

Sectoral Approach. In 1995, the Argentine Congress amended the Mining Code to address environmental impacts from mining and petroleum and liquid hydrocarbon activities. (See Law 24.585/1995; Mining Code, Art. 249) Parties engaged in regulated mining activities are responsible for all environmental damages resulting from noncompliance with the code, whether caused directly by them, indirectly by their agents or contractors, or simply due to risks inherent in the activities. (Mining Code, Art. 248) Holders of mining interests are jointly and severally liable with anyone they authorize to conduct mining or petroleum activities. (Art. 248) Responsible parties are also broadly liable for mitigating, rehabilitating, restoring, or repairing environmental harms which would presumably include cleanup of contaminated sites. (Art. 263) Administrative, civil and criminal sanctions may also apply in addition to remediation requirements (Art. 263), but enforcement discretion remains with the Provincial authorities. (Art. 250)

Liability for Contamination

Administrative, civil and criminal liability can be assigned to parties responsible for contaminating property under a range of codes and laws in Argentina and these liabilities are not mutually exclusive. (Law 25.675, Art. 29) A citizen-suit styled cause of action for environmental damages was also created in 2002. Under these citizen suit provisions, anyone who causes “environmental damage” is responsible for returning the environment to its prior state or, if technically infeasible, paying into the National Environment Fund, which was to be created for this purpose. (Law 25.675, Art. 28) “Environmental damage” is broadly defined as any relevant alteration that negatively modifies the environ-

ment, resources, ecosystem equilibrium, or collective goods or values. (Art. 27)

Parties are jointly and severally liable if more than one person caused the harm and it is impossible to determine the extent of each party’s fault. (Art. 31) Finally, corporate officials could conceivably be held liable in accordance with their degree of participation in the contamination. (Art. 31)

For the first time, a wide spectrum of potential environmental protectors were authorized to bring such a suit: affected parties, the public defender, national, provincial or municipal governments, and importantly, even environmental non-government organizations (Art. 30). All have the authority to file suit against the polluter to force remediation. In a recent example of such a suit, concerned citizens in the Province of Buenos Aires sued the provincial government and one of its municipalities to force them to take action to stop the alleged contaminated of a machine parts company and ordered it to clean up the pollution of an underground water supply. In a decision similar to the one in the Matanza Riachuelo case, the Appellate Court ordered the province to produce a cleanup plan in 180 days, requiring the company to cease its chroming operations and importantly, pay for the remediation. These types of suits may shape the landscape of contaminated site regulations in the absence of formal standards.

BRAZIL

Legal Framework

Brazil lacks a framework national law for addressing contaminated sites. Nonetheless, its constitution provides that parties engaged in activities or conduct considered harmful to the environment must repair the damage, independent from the criminal and administrative penalties that might apply. (Constitution, Art. 225, Section 3) The National Environmental Policy (Law 6.938/1981) further specifies that a polluter is strictly liable for indemnification or remediation of environmental harm caused by its activities, independent of other sanctions. (Art. 14, Section 1) While the federal government has not yet enacted a law that implements these policies, certain Brazilian industrialized states have developed strong programs of their own.

Agency Jurisdiction.

Brazil’s Ministry of the Environment (MMA), its enforcement branch (the Institute for the Environment or IBAMA), and its deliberative regulatory council (the National Environmental Council or CONAMA) have the authority to set national minimum environmental standards. (See Law 6.938/81 for roles of each agency.) Although these agencies have not adopted a framework system for addressing contaminated property, several efforts are underway to identify priority sites that could lead to enactment of contaminated property regulation.

It bears noting that Brazilian states also have significant jurisdiction over environmental matters, both independently but also by way of delegation from the federal agencies. (See Law 6.938/1981) Regulation of contaminated properties has been essentially delegated to the states by IBAMA. São Paulo State has aggressively used this authority to develop a program, discussed below, that has now become a regional reference standard. The state also established the Latin American

Network of Prevention and Management of Contaminated Sites (Portuguese acronym RELASC) which has met at least once, in 2006.

Status of National Programs and Inventories

Several national efforts to identify priority sites are underway, including the National Profile of Chemical Substances Management (*Perfil Nacional da Gestão de Substâncias Químicas* or PNGSQ) and a Ministry of Health initiative (*Vigilância em Saúde de Populações Expostas a Solo Contaminado* or VIGISOLO).

VIGISOLO and National Profile of Chemical Substances Management

In 2005, the Ministry of Health began identifying sites where the public is exposed to contamination through the so-called VIGISOLO program and which has now listed over 700 areas. A map with the location of the sites is available from the Ministry of Health at http://189.28.128.100/portal/saude/visualizar_texto.cfm?idtxt=26236.

Separately, in 2003, the Ministry of the Environment (MMA) established the National Profile of Chemical Substances Management (*Perfil Nacional da Gestão de Substâncias Químicas*), which focused on industrial sites where chemicals and hazardous wastes has led to contamination. The profile listed fifteen cases of contamination by chemical substances that were discovered or occurred between 1992 and 2002. (See Profile, Table 3.6)

To date, neither of these national efforts has resulted in the enactment of any concrete national law or regulation or any specific federal enforcement program. Both programs have highlighted contaminated properties in Brazil and may have spurred states to take action.

Draft National Standards for Remediation. For several years, CONAMA has been actively working on a draft national standard on “Criteria Values for Soil Quality and Directives for Management of Areas Contaminated by Chemical Substances from Man-Made Activities” (the draft resolution). The current version was approved by the special working group charged with its drafting on August 13, 2008, but still needs more regulatory review before it is finalized.

The draft resolution calls for state environmental agencies to develop reference values for soil and water contamination for listed substances in accordance with procedures set out in the draft within four years of its publication. The prevention and investigation values would be set in the draft itself. A list of potentially polluting activities (not yet completed) would provide the starting point for regulation, whereby the state environmental agency could require facilities engaged in listed activities to institute programs to monitor the soils (on-site and possibly off-site) and to present technical reports on soil and water quality each time it renews its license or before closure. If the studies indicated contamination, the company would be required to undertake remedial steps.

Importantly, the draft sets out a broad concept of “responsible party” and would deem the following entities as potentially responsible for a contaminated site: (a) the party that caused the contamination and its successors; (b) the owner of the land and its successors; (c) the trustee holder; (d) the surface owner, and (e) whoever benefits directly or indirectly from the land.

The draft proposes to allow “piercing of the corporate veil” if a corporation were a so-called “obstacle” to identification and intervention in the contaminated site. The draft calls for IBAMA to create a National Registry of Contaminated Sites and would require notation of contamination to be provided in the title history at the land registry.

Although the draft resolution is fairly developed, it could undergo more changes as it moves through CONAMA’s regulatory process, next to another committee and then to a plenary session for a vote, possibly as early as November 2008.

São Paulo State Program. Although São Paulo lacks a specific law, CETESB, the state environmental enforcement and regulatory authority, has developed a significant program relying on broad environmental mandates (e.g., the National Environmental Policy, Law 6.938/81, State Laws 997/76 and 9.509/97 and State Decree 8.468/76), which is implemented through companion guidelines and technical directives. These include the Procedures for Management of Contaminated Areas (Directive 103/2007/C/E or the “directive”) (2007) and the Manual for Management of Contaminated Land (*Manual de Gerenciamento de Áreas Contaminadas*).¹ São Paulo’s program has become a regional reference both for remediation standards and enforcement and has influenced developments at Brazil’s national level. Going forward, it may well be referenced by other Latin American countries.

The directive sets out a comprehensive program for identifying and managing contaminated sites. Although CETESB is responsible for first identifying areas of the state with potential contamination (Directive, Section 5.2), remaining sampling, risk analyses and remediation activities at a specific site are the responsibility of the responsible party (i.e., landowner and/or polluter). Once analytical information about a site is complete, sites are classified according to risk. All remediation, including monitoring, must be completed within five years from initial inventory. (Section 5.11) Once remediated, CETESB can declare a site suitable for a particular use (*Termo de Reabilitação da Área para Uso Declarado*) and delete the site from the list of contaminated sites. (Section 5.11)

Under the São Paulo program, responsibility for discovery, investigation, analysis and remediation of specific contaminated sites belongs to the landowner or polluter. The responsible party (*Responsavel Legal*) is defined as the individual or entity, public or private, who is directly or indirectly responsible for the contamination of the site or responsible for the property potentially or actually contaminated. (Directive, Section 2) The responsible party is in turn liable for the studies necessary to identify, investigate, analyze the risk and implement the corrective actions necessary to rehabilitate the area for a stated or declared use. (Section 2)

Liability for Contamination

In addition to obligations under state laws, a company in Brazil may face criminal, civil, and administrative liability for contaminated lands under a range of broad federal codes and standards. For example, caus-

¹ Contaminated gas stations are separately regulated by federal law (CONAMA Resolution 273/2000) and state rules (SMA 05/2001). (See, also, Directive, Section 6.0)

ing pollution of any type that renders an area, urban or rural, unfit for human occupation carries a criminal penalty of up to five years in prison. (Law 9.605/98, Art. 54 Section 2) Similarly, any act or omission that violates legal rules on use, enjoyment, promotion, protection or recovery of the environment can be punished with administrative sanctions ranging from a warning and fine to seizure or closure, including the obligation to repair the harm. (Decree 6.514/2008, Art. 2-3) More specifically, rendering an area unfit for human occupation carries a steep fine (ranging from 5,000 reals to 50 million reals or a daily fine). (Decree 6.514/2008, Arts. 62(1), 61)

Further, as a general matter, landowners and/or polluters could face possible civil suits from a range of potential plaintiffs. In addition to traditional nuisance-type suits provided for under the Civil Code, two specific civil actions for environmental contamination are also contemplated under Brazilian laws. First, citizen suits may be brought by government officials or registered nongovernmental organizations to protect the environment and require restoration or payment of monetary damages. (See Law 7.347/85) Also, a public prosecutor may bring an enforcement action against a polluter for remediation or indemnification (See Law 6.938/81).

Under Brazil's strong polluter-pays principles, a polluter can be held strictly liable for indemnifying and repairing the harm to the environment or individuals. (See Law 6.938/81, Art. 14 Section 1). Importantly, at least as strictly stated by code, corporations can be held liable for violations committed by their legal or contractual representatives or its board in the interest or benefit of the company. (Law 9.605/98, Art. 3) Additionally, the corporate veil may be pierced to hold directors or even shareholders liable when the corporation is found to be an "obstacle" to recovering compensation or indemnification for harm to the environment. (Art. 4)

CHILE

Legal Framework

Chile lacks a national framework law for comprehensively addressing contaminated sites. However, in 1994, Chile enacted its framework environmental statute for dealing with environmental matters, Law 19.300, *Ley de Bases Generales del Medio Ambiente* (General Environmental Law). This law reaffirms the right to live in an environment free of pollution as well as the state's duty to guard against any infringement of this right. Among other things, the law also incorporates polluter-pays principles; provides for plans for management, prevention, and cleanup; and defines responsibility for environmental damage.

Agency Jurisdiction

CONAMA was created as a decentralized agency and intended to function primarily as an inter-ministerial coordinating board on matters related to the environment. It was established under the General Secretariat of the Presidency to be overseen by a board of directors including representatives of numerous ministries including the Ministries of Health, Mining, Transportation, and Agriculture, to name a few. To add to this complexity, CONAMA is decentralized through Regional Commissions for the Environment or COREMAS, which include representation from provincial governors

and ministerial representatives for the region. Thus, its regulatory authority may be viewed as both more limited and more complex than that of agencies in other jurisdictions in the region.

As provided by the General Environmental Law, CONAMA has authority to adopt environmental quality norms, but only in conjunction with other ministries. CONAMA is also responsible for, among other things, proposing environmental policy, serving as a body for consultation, analysis, communication on environmental matters and administering the Environmental Impact Evaluation System (SEIA).

The General Environmental Law also grants CONAMA authority to establish prevention or decontamination plans in those geographic areas that have been determined, by decree of the General Secretariat Ministry of the president, as either saturated or latent zones because they either exceed environmental quality norms or fall within 80-100 percent of the established values in such norms. The objectives of these plans, which include a formal consultation process as well as a technical and economic evaluation, is to bring the affected geographic areas within established environmental standards. In Santiago's Metropolitan Region, for example, such a decontamination plan has been put in place to address air quality concerns in the area.

However, in response to continuing concerns regarding the structure and effectiveness of the CONAMA, the structure of the agency is changing. In 2007, the new president of CONAMA acquired the status of a cabinet minister. In June 2008, President Michelle Bachelet, in recognition of the challenges associated with the current fragmented environmental regulatory framework, signed a bill that would establish both an Environment Ministry and an Environmental Enforcement Superintendent's Office.

Status of National Program and Inventories

In Chile, formal national comprehensive remediation programs and inventories are not currently in place, but they are under development. As reflected in various policy documents, the need for these has been the subject of discussion by governmental authorities for quite some time. For example, the Environmental Policy for Sustainable Development (*Una Política Ambiental para el Desarrollo Sustentable*) adopted by CONAMA in 1998 recommends that Chile address the problems associated with contaminated sites (*pasivos ambientales*) as a priority item. In 2005, Chile adopted a Policy for Integral Management of Solid Wastes (*Política de Gestión Integral de Residuos Sólidos*) setting forth the need to address contaminated sites due to mismanagement of solid wastes as an action item. Specifically, this policy identifies the need for CONAMA and the Ministry of Health to develop an inventory and program for contaminated sites based on a National Policy for the Management of Contaminated Sites (*Política Nacional para la Gestión de Sitios Contaminados*).

In addition, as a cooperative project under the U.S.-Chile Free Trade Agreement, the U.S. Trade and Development Agency provided a grant to CONAMA with the goal of providing technical assistance for development of an environmental remediation project framework in Chile. (See, Technical Assistance on the Development of a Regulatory Framework for Environmental Remediation Projects in Chile, Final Report, March 14, 2007). As a result, Chile has been designing a registry system

for contaminated sites which would allow an assessment of the magnitude of the problem associated with contaminated sites at a national level. Further, the National Policy for the Management of Contaminated Sites, which has been subject to public consultation as well as inter-ministerial coordination, will be issued in the near term according to local reports. It is anticipated that this policy will address three primary aspects: (i) identification of contaminated sites; (ii) evaluation of the risks associated with each contaminated site; and (iii) remediation of those sites that present a significant risk to human health or the environment.

Sectoral Approaches. As one of the world's largest mineral producers, Chile faces significant issues in addressing the environmental problems associated with closed and abandoned mines. The National Geology and Mining Service (SERNAGEOMIN), a governmental agency that regulates the mining industry in Chile, carries out its oversight functions related to environmental protection by, among other things, its participation in the SEIA process under the General Environmental Law. SERNAGEOMIN has also used voluntary Clean Production Agreements with the mining industry as well authority under mine safety laws to supervise mine activities and closures. Recently, as a result of the five-year Project for Strengthening Institutional Capacity of Mining Environmental Management between SERNAGEOMIN and Japan's Agency for International Cooperation, SERNAGEOMIN has developed a national registry of more than 300 abandoned mining sites and completed a risk assessment of more than 200 of these sites. Finally, a legislative framework that would specifically target mine closures and historical contamination at mining sites has been under development for some time. Reported to have the support of President Batchelet, it is conceivable that the two draft bills (*Anteproyecto de Ley de Cierre de Faenas Mineras* and *Anteproyecto de Ley de Pasivos Ambientales Mineros*) will be proposed and adopted in the near term.

Liability for Contamination

Under the General Environmental Law, any person who willfully or negligently causes environmental damage is required to repair the damage or to provide indemnification as provided under the law. (Art. 3) "Environmental damage" is defined as "significant loss, decline, detriment or harm caused to the environment or one or more of its components." (Art. 2(e)) Once environmental damage exists, an action to repair the environmental damage may be initiated. Persons who may bring such an action include those who have sustained damage, municipalities and the state, through the State Defense Council (*Consejo de Defensa del Estado*). (Art. 54) Under the General Environmental Law, a person responsible for environmental damage is presumed to be at fault if he has violated environmental norms. (Art. 52)

Notably, norms relating to responsibility for environmental damages in any media-specific laws will prevail over those set forth in the General Environmental Law. (Art. 51) Further, for any matter not anticipated by the General Environmental Law, the provisions of the Civil Code apply. (Art. 51) Generally, under the Civil Code, any person who has committed an offense or tort that has caused harm to another, shall be required to provide indemnification, without prejudice to any sanctions imposed by law. (*Código Civil, Libro, Art. 2314*)

COLOMBIA

Legal Framework

Colombia lacks a national framework law for management and clean up of contaminated sites. However, the "right to a healthy environment" and the authority of the federal environmental agency (the Ministry of Environment, Housing and Sustainable Development or MAVDT) to prevent and control environmental deterioration are derived from Colombia's 1991 constitution and existing environmental laws.

Contaminated site issues have recently been brought into focus as a result of Colombia's growing attention to the development of hazardous waste laws and policies. In 1998, Colombia adopted Law 430 (*Ley 430 de 1998, Por la cual se dictan normas prohibitivas en materia ambiental, referentes a los desechos peligrosos y se dictan otras disposiciones*) intended to establish a comprehensive hazardous waste policy. In late 2005, MAVDT adopted the implementing regulation for Law 430, Decree 4741 (*Decreto 4741 de 2005 por el cual se reglamenta parcialmente la prevención y manejo de los residuos o desechos peligrosos generados en el marco de la gestión integral*).

At that time, MAVDT also finalized its Environmental Policy for the Integral Management of Hazardous Wastes (*Política Ambiental para la Gestión Integral de Residuos o Desechos Peligrosos*), identifying the management of contaminated sites as a specific national strategy. Among other things, this policy document calls for the development of a specific legal framework for the evaluation and classification of contaminated sites and the establishment of technical requirements to be satisfied by remediation projects on contaminated sites. Local sources report that implementation of this strategy is underway and that, in the near term, MAVDT will release a guidance document (*guía ambiental*) addressing contaminated site management issues.

Agency Jurisdiction.

Law 99 of 1993 vests MAVDT with the authority to require restoration of natural resources to eliminate or mitigate the impact of contamination and to impose penalties and sanctions for violation of environmental protection norms. (Law 99, Art. 5 and 84) The law also authorizes MAVDT to establish maximum permissible limits for emissions, discharges, and deposits that may affect the environment and to prohibit the disposal of substances that cause environmental degradation. (Law 99, Art. 25) Implementation and enforcement of environmental norms and standards also shared with regional autonomous authorities (CARs) and municipalities that form the National Environment System (SINA).

Status of Remediation Programs and Inventories

Although no statutory mandate for developing a national inventory of contaminated sites exists, Colombia has begun to take steps to identify and address contaminated property. One notable effort is related to Colombia's inventory of pesticide contaminated sites—primarily the result of the heavy use of pesticides in cotton, corn, rice and potato crops decades ago. In May of 2007, MAVDT published the Consolidation of the Inventory of Pesticides (*Consolidación del Inventario de Plaguicidas COP*), the result of funding provided by the World Bank and the Global Environmental Fund. In No-

member of 2007, MAVDT entered into an agreement with the Ministry of Agriculture and Rural Development to, among other things, develop a proposal for the identification, management, and criteria for prioritization of contaminated sites that appears to continue a focus on pesticides. (*Agenda Ambiental Interministerial, Ministerio de Agricultura y Desarrollo Final, Ministerio de Ambiente, Vivienda y Desarrollo Territorial, Bogotá, Noviembre de 2007*) This inventory has allowed an identification of the location of pesticide-contaminated sites and the nature and quantities of the substances involved. It is also intended to serve as the basis for undertaking remediation activities at these sites.

Liability for Contamination

Colombian laws can give rise to potentially sweeping liabilities against parties responsible for contaminating property. For example, according to Law 23 of 1973, any person who uses elements capable of producing contamination must inform the national government and consumers of the potential hazards involved. (Law 23, Art. 15) Such persons are responsible for any resulting damages to man or natural resources. (Law 23, Art. 16)

Further, Colombia's hazardous waste regime broadly imposes cradle-to-grave responsibilities on generators as well as manufacturers and importers of hazardous products. (Decree 4741 of 2005) Transporters and recipients of hazardous waste also assume, upon receipt, comprehensive responsibility to properly manage the wastes. (Decree 4741, Art. 16 and 18) Comprehensive responsibility may include the monitoring, characterization, and remediation of land, surface waters, and groundwater in the event of contamination. (Decree 4741, Art. 18, Paragraph 2)

Disposal of hazardous wastes in unauthorized sites is prohibited and subject to sanction. (Decree 4741, Art. 32(g)) Any "person responsible" for causing site contamination from inadequate hazardous waste management must characterize and remediate damages caused to health and the environment. (Decree 4741, Art. 19) Remediation is defined to include a combination of measures to reduce or eliminate contaminants to a safe level for health and the environment. (Decree 4741, Art. 3)

Liability for environmental damages arises not only under environmental laws, but also civil and criminal statutes. For example, under Colombia's New Penal Code (*Ley 599 de 2000*), a person who, in noncompliance with existing laws, contaminates land, water, or other natural resources in a manner which endangers human health, fauna, forest, plant or hydro-biological resources may be subject to substantial penalties and imprisonment. (New Penal Code, Art. 331 and 332) Third parties may also avail themselves of existing procedural mechanisms under other laws, including Colombia's Código Civil, to seek indemnification.

ECUADOR

Legal Framework

Ecuador has in place a regulatory framework for soil contamination that builds on the Ecuadorian constitutional principle that every citizen has a right to live in a healthy environment that is free from contamination. The principle is incorporated into the national Law for

Prevention and Control of Environmental Contamination and its implementing regulations and norms, which assign liability and provide the general standards for remediation of contaminated soils. A few sectoral ministries, such as the Ministry for Energy and Mining, also have in place regulations that include separate remediation requirements and standards. Individual citizens and/or groups may also file suit and seek damages for violations of their constitutional right to a clean environment under the Environmental Management Law (Law No. 37, 1999). The future use of this law by citizen groups may be shaped by the outcomes of an ongoing case involving soil contamination and remediation efforts associated with the past operation of oil concessions in the northern Ecuadorian Amazon.

Agency Jurisdiction

Ecuador has a Decentralized System for Environmental Management that relies on provincial and local government enforcement through environmental control entities. A National Commission of Sustainable Development, made up of representatives from various sectors and all levels of national, provincial, and local governments, is charged with overseeing the decentralized system. The Ministry of Environment is responsible under the Law for Prevention and Control of Environmental Contamination for developing the national policy and the legal framework for soil contamination and monitoring the environmental control entities to ensure adequate capacity and enforcement of remediation standards. For the petroleum sector, the Sub-Secretary of Environmental Protection of the Ministry of Energy and Mining, acting through the National Environmental Protection Board, has similar responsibilities, but is also called upon to approve and monitor remediation programs.

Status of National Program and Inventories

Ecuador does not have a national inventory of contaminated sites; the existing regulatory framework addresses only liability and standards for remediation. Under the Norm for Environmental Quality of Soil Resources and Remediation Requirements for Contaminated Soils, those who cause by action or omission contamination of soil due to spills, dumping, run-off, improper storage or abandonment of products or dangerous, infectious or petroleum-based substances are required to undertake remediation action if the concentration of a listed contaminant is greater than three times a baseline concentration. (Norm, § 4.1.3.1.) The regulated entity has responsibility for developing the baseline through at least five soil tests from nearby areas, as well as determining the level of contamination in the affected area. (Norm, § 4.1.3.3.) The norm also establishes procedures for remediation as well as soil quality and soil clean-up standards for a number of substances. (Norm, § 4.1.3.6; § 4.2.1-2.) In the event of an accident, those responsible must provide to the appropriate environmental control entity a detailed report in writing within 48 hours that contains certain required information, including a remediation plan. (Norm, § 4.1.3.5.)

Sectoral Approaches

The Ministry of Environment has also issued three sub-norms that govern soil remediation procedures for ports, airports and electric energy generation facilities.

(See Unified Environment Text, Book 6, Annexes 2A (electric energy generation facilities), 2B (ports) and 2C (airports)). Generally, these standards follow the procedures in the general norm, but those for airport and electric energy generation facilities include additional remediation standards. (Annex 2C, § 4.4.3; Annex 2A, § 4.4.2.) Each of the sub-norms require environmental management plans for individual facilities that set out the frequency of testing, the methods of analysis, and monitoring parameters for contaminated soils. (Annex 2A, § 4.4.1. Annex 2B, § 4.4.3; Annex 2C, § 4.5.2.) Monitoring efforts must be registered with the appropriate environmental control entity. (Annex 2A, § 4.3.2. Annex 2B, § 4.4.4; Annex 2C, § 4.5.3.)

Several natural resources sectors, such as the petroleum industry, are also subject to additional remediation requirements. Ministerial Decree 1215, or the Environmental Regulation for Petroleum Operations, requires environmental management plans for any petroleum activities that must include rehabilitation plans for affected areas. In the event of soil contamination, those responsible must set up a remediation program or project in accordance with the decree's requirements that must be approved by the Sub-Secretary for Environmental Protection, located within the Ministry of Energy and Mining. The sub-secretary is responsible for coordinating on the technical aspects of monitoring and control of these projects or programs. Within 15 days after a remediation project is complete, those responsible for the remediation must present a technical evaluation report on the project to the sub-secretary. (Decree 1215, Art. 16) Annual environmental reporting, required under the decree, must also track remediation progress. (Decree 1215, Art. 11.)

Liability for Contamination

In 1999, the National Congress passed the Environmental Management Law that provides citizens an opportunity to protect their constitutional right to a clean environment through the courts. Under the Law, every citizen has a right to be heard in a criminal, civil, or administrative proceeding involving environmental matters. (EML Art. 42). Individual citizens and groups directly affected by acts or omissions that caused harm to their health or the environment can bring civil actions for damages. (EML Art. 43). The law also establishes that the president of the Superior Court in the location where the environmental impact occurred maintains jurisdiction to hear these cases. (EML Art. 42). The judge is solely responsible for determining reparations, as well as selecting the natural person or corporate body best positioned and most appropriate to receive and distribute the payments. (EML Art. 43). In 2003, attorneys representing Ecuadorian nongovernmental organizations and citizens used this law to file suit in Ecuador against Chevron Corporation. The plaintiffs have contended that Texaco Petroleum Company, a wholly owned subsidiary of Texaco (now part of Chevron), caused environmental and human health damages through its participation as a minority partner in a large oil consortium operated between 1964-1992 in the Oriente region of Ecuador.

MEXICO

Legal Framework

Mexico has one of the most stringent federal waste management regimes in the Americas, surpassing the

waste management policies of even the United States, and includes a comprehensive remediation program. The legal framework for the existing program was adopted in 2003 under the General Law for the Prevention and Comprehensive Management of Wastes (*Ley General para la Prevención y Gestión Integral de los Residuos*) (the waste law or LGPGIR) as part of sweeping reforms to Mexico's waste laws. Although the prior waste regime included remediation policies in concept, liability provisions were limited and the legal authority of Mexico's federal environmental agency, *Secretaría de Medio Ambiente y Recursos Naturales* (SEMARNAT), to require remediation activities and address abandoned sites lacked enforceable clean-up standards.

The waste law attempted to address these legal shortfalls and has now been implemented through the regulation and two official norms, (*normas oficiales mexicanas*) that set forth cleanup standards for remediating properties. Although numerous ambiguities remain, it is plain that Mexico is serious about dealing with contaminated sites through a very broad set of polluter pays policies similar to those of the United States.

Agency Jurisdiction

SEMARNAT's authority to address contaminated sites was greatly expanded under the new law. SEMARNAT is now charged, together with state and municipal authorities, to develop and execute remediation programs to cleanup abandoned contaminated properties or where the responsible party is unknown. (Art. 73, see generally arts. 7(I),(II) 9(I), (II), (VIII).) SEMARNAT and other agencies may impose emergency actions for sites contaminated with hazardous wastes or materials to address environmental contingencies. (Art. 72.)

National Programs and Inventories

SEMARNAT is charged with the task of creating a National Inventory of Contaminated Sites with hazardous wastes for the purposes of determining whether they should be remediated and to develop cleanup standards through official Mexican norms. (Arts. 75, 76, 77.) Headway on the National Inventory of Contaminated Sites appears to be well underway.

According to an article in the Mexican newspaper, *La Reforma*, Mexico's federal environmental agency, SEMARNAT has now identified 297 abandoned sites contaminated with hazardous wastes in Mexico. (See Adriana Alatorre, *Reportan 297 sitios con residuos tóxicos*, April 23, 2008). The sites will ultimately be available in the *Sistema Infomático de Sitios Contaminados* (SISCO) although it is not publicly available at this time. SEMARNAT has already designated several sites as having presidential priority, including: the *Jales Mineros de Nacozari* (Sonora), *Confinamiento Cytrar* (Sonora), *San Felipe Nuevo Mercurio* (Zacatecas), *Confinamiento de Guadalucazar* (San Luis Potosi), *Metales y Derivados* (Baja California), *Cromatos de Mexico* (Mexico) and *Techkem* (Guanajuato). According to the *La Reforma* article, SEMARNAT officials have not completed their full assessment of sites but expect to do so over the next two years.

It is unclear at this time, what, if any action SEMARNAT will take as a result of its identification and registration of contaminated properties and whether and how it will seek reimbursement from third parties.

The regulation sets forth two types of remediation programs, one for emergencies and one for so-called

“pasivos ambientales” or historic contamination. A *pasivo ambiental* is defined as a site contaminated from the release of hazardous wastes or materials that were not timely remediated to prevent the dispersion of contaminants but that requires an obligation to remediate. (Regulation Art. 132.) An emergency is defined as contamination from a site derived from a sudden, unanticipated, and undesired event or circumstance and that results in an uncontrolled release, fire, or explosion of one or more hazardous wastes or materials and that immediately affects human health or the environment. (*Id.*) Both types of programs require technical information laid out with some specificity in the regulation that includes a characterization study, and environmental risk evaluation study, historic investigations, and proposals for remediation. (Art. 134, see also Arts 138-143.)

The law requires that remediation activities be conducted through approved remediation programs. A remediation activity is defined broadly as the collection of activities undertaken at contaminated sites to eliminate or reduce contaminants until a safe level for human health and the environment has been reached or to prevent their further dispersion into the environment. (LGPGIR Art. 3 (XXVIII).) The regulation similarly requires that remediation programs should have as a baseline standards established in the Mexican norms or where those do not exist, risk-based remediation levels based on evaluation studies. (Regulation Art 133.) Remediation actions cannot leave soil contaminated in excess of cleanup standards. (Regulation Art. 149 (VII).)

Two norms have been published setting cleanup standards. The most recent, NOM-147-SEMARNAT/SS-2004, which entered into force in 2007, sets forth two tiers of cleanup standards depending upon designated use (*i.e.*, industrial or agricultural/residential/commercial) for the following chemicals and heavy metals: arsenic, barium, beryllium, cadmium, hexavalent chrome, mercury, nickel, silver, lead, selenium, thallium and vanadium. The other, published in 2005, establishes cleanup standards for hydrocarbons.

Liability for Contamination

The waste law outlines a broad set of liabilities for an equally broad set of potentially responsible parties for addressing site contamination. Generally, those who are “responsible for site contamination,” including damages to health, are responsible for repairing the damage. (LGPGIR Art. 68.) Further, those “responsible” for activities related to the generation and management of hazardous wastes and materials that have caused site contamination are required to undertake remediation activities. Finally, owners and possessors of private properties or concessions with contaminated soils are jointly and severally liable for undertaking remediation activities, irrespective of fault. (Art. 70.) The waste law does not directly grant rights of responsible parties to seek contribution against other potentially responsible parties, but does not bar those actions. Presumably, the third parties would use existing standards under Mexico’s Civil and Commercial Code to seek contribution or indemnities, although success in this regard may be limited. Finally, those responsible for site contamination are liable for attendant administrative, civil or criminal penalties. (Art. 71.) In a somewhat novel set of provisions designed to ensure that most remediation activities are conducted, the general law also prohibits the transfer of property contaminated with hazardous

wastes without the express authorization of SEMARNAT. (LGPGIR Art. 71, Regulation Art 127.)

PERU

Legal Framework

Peru adopted a General Law of the Environment (*Ley 28611, Ley General del Ambiente*) in 2005 (law), which abrogated the Environmental Code of 1990. As a basic precept that is also recognized in Peru’s Constitution, the law provides that all persons have the right to live in an environment that is healthy, balanced, and adequate for the full conduct of life. (Law, Art. I) The law adopts the principle of environmental responsibility imposing upon persons who cause degradation of the environment the obligation to adopt all restoration and repair measures necessary or, when that is not possible, to provide compensation for any damages. (Law, Art. IX) Peru’s waste regime re-affirms this environmental responsibility principle by establishing cradle to grave responsibilities on hazardous waste generators. (*Ley 27314, Ley General de Residuos Sólidos*) (waste law)

Agency Jurisdiction

Until recently, Peru’s environmental management framework was overseen by the National Council of the Environment (*Consejo Nacional del Ambiente* or CONAM), a decentralized body including representatives from national, regional and local governments. (*Ley 26410, Ley de Creación de CONAM*) However, Peru has recently approved the creation of a Ministry of Environment and the merger of CONAM into the new ministry. (*Decreto Legislativo No. 1013*) Among other things, the ministry is charged with establishing criteria and procedures for the development, coordination, and implementation of decontamination plans and restoration of damaged environments. (*Decreto Legislativo No. 1013, Art. 7*) Although still in its infancy, the new ministry will presumably strengthen the institutional framework for managing and overseeing environmental issues, including contaminated site regulation, in the country.

Status of National Programs and Inventories

The General Law of the Environment calls for the creation of standards for environmental quality (*Estándares de Calidad Ambiental* or ECAs) that set chemical concentration levels in the air, water, or soil to prevent any significant risk for human health or the environment. (Law, Art. 31.1). CONAM (now the Ministry of the Environment) issued a proposal creating ECAs for soils in December of 2007 (proposal). (*See, Resolución Presidencial, No. 199-2007-CONAM/PCD.*) It would, among other things, establish soil cleanup levels for benzene, toluene, ethylbenzene and xylenes (BTEX) as well as hydrocarbon fractions, heavy metals, PCBs and certain pesticides. (Proposal, Art. 1, Table 1) The proposal has not yet been adopted although CONAM identified this ECA as a priority action item in 2006. (*See, Decreto del Consejo Directivo No. 029-2006-CONAM/CD, Aprueban Cronograma de Priorizaciones para la aprobación progresiva de Estándares de Calidad Ambiental y Límites Máximos Permisibles.*)

Although a broad national inventory of contaminated sites does not exist in Peru, efforts to identify contaminated sites are underway. For example, in 2006, Peru

completed a National Inventory of Pesticides (*Inventario Nacional de Plaguicidas COP*) with the goal of identifying sites needing priority attention. In 2007, Peru published its National Plan for Implementation of the Stockholm Convention on Persistent Organic Pollutants (*Plan Nacional de Implementación del Convenio de Estocolmo sobre los Contaminantes Orgánicos Persistentes*) identifying, as a priority action item, the identification and characterization of POP contaminated sites. This effort is indicative of Peru's growing awareness of the need to address historical contamination.

Sectoral Approaches. In 2004, Peru adopted Law 28271 (*Ley Que Regula Los Pasivos Ambientales de la Actividad Minera* as modified by Law 28526 and regulations approved by Supreme Decree No. 059-2005-EM) to govern remediation of contaminated sites associated with the mining sector. Law 28271 defines "contaminated sites" (*pasivos ambientales*) as any facilities, effluents, emissions, remains or deposits of wastes produced by mining operations that are currently abandoned or inactive and that constitute an actual or potential risk to the health of the population, surrounding ecosystem and property. (Law 28271, Art. 2) Under this law, the Ministry of Energy and Mines is responsible for identifying and creating an inventory of contaminated sites as well as identifying those responsible for the mining operations that resulted in contaminated sites and those currently the holders of a concession where there are inactive mining operations that include a contaminated site. (Law 28271, Art. 2 and 3)

Responsible persons are required to present a closure plan mitigating or eliminating the risks and effects on the population and ecosystem no later than a year after being identified. (Law 28271, Art. 6) The closure plan must generally be implemented within three years after approval (Law 28271, Art. 7) The state assumes cleanup responsibility for those abandoned sites for which responsible persons cannot be identified. (Law 28271, Art. 5, as amended by Law 28526 of 2005). Implementing regulations were adopted in 2005 and further determine the remediation obligations of responsible persons, establish a detailed public participation process prior to approval of the closure plan and provide for cost recovery by the state. The regulations also allow those implementing a closure plan to seek contribution against those who share responsibility for the contamination but are not participating in the plan. (Supreme Decree No. 059-2005-EM, *Decreto Supremo No. 059-2005-EM, Reglamento de Pasivos Ambientales de la Actividad Minera*)

In late 2007, Peru adopted Law 29134 (*Ley 29134, Ley Que Regula los Pasivos Ambientales del Subsector Hidrocarburos*), which is aimed at regulating contaminated sites associated with the hydrocarbon sector with the goal of reducing or eliminating any negative impacts to health, the population, the surrounding ecosystem, and property. (Law 29134, Art. 1). Although the remediation framework for the hydrocarbon sector shares some of the same elements of the mining sector program, its approach is not entirely the same. Contaminated sites are defined as any wells or facilities that were improperly abandoned, contaminated sites, effluents, emissions, remains, and deposits of wastes located in any part of the national territory, including the marine floor, produced as a result of hydrocarbon opera-

tions undertaken by companies that have ceased their activities in the area where said impacts were produced. (Law 29134, Art. 2) The Ministry of Mines and Energy is required to develop a list of contaminated sites and determine the responsible persons based on a set of polluter pays criteria.

Responsible persons are required to submit a Plan of Abandonment of the Area (PAA) for approval by the Ministry of Energy and Mines that addresses decontamination, restoration, reforestation, and closure of installation activities as well as any other actions necessary to remediate the contaminated sites, taking into account the original conditions of the ecosystem, the current geographic conditions and the future use of the area. (Law 29134, Art. 6) In those cases where it is not possible to identify those responsible for contaminated sites, the state shall assume responsibility for remediation over time. (Law 29134, Art. 4). Although the Ministry of Energy and Mines has not yet adopted the implementing regulation for the law, it is due in the near term—the law requires an implementing regulation within six months of its effective date. This implementing regulation will likely elaborate on the obligations of responsible parties and role of the state in ensuring that contaminated sites undergo adequate remediation.

Liability for Contamination

Any person who in the process of using an asset, or conducting an activity, produces damage to the environment, the quality of life of the people, to human health or the natural resources of the country, is required to assume the costs for prevention and mitigation of the damage, as well as those relating to inspection and monitoring of the activity and any preventive or mitigating measures that are adopted. (Law, Art. 142.1) "Environmental damage" is defined as any adverse material effect on the environment and/or any of its components, whether or not caused by contravening a legal requirement and that results in actual or potential negative effects. (Law, Art. 142.2). Any person who causes environmental damage as a result of the use of an asset or an activity that presents an environmental hazard or risk is strictly liable. (Law, Art. 144) Otherwise, subjective responsibility (*responsabilidad subjetiva*) will typically be assigned, i.e., the amount of responsibility will be a function of the fault or intent associated with the damage. (Law, Art. 145) Administrative penalties are independent from any civil or criminal responsibilities that may apply. (Law, Art. 138)

CONCLUSION

The Latin American region appears to be in the midst of a sea-change in its approach to the regulation of the remediation of contaminated sites and assignment of liabilities for the same. Because the region has already embraced polluter-pays policies as a general matter, these policies should be expected to play out in the emerging regimes governing contaminated sites as well.

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