ENVIRONMENTAL PROTECTION THROUGH CRIMINAL LAW

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I. ENVIRONMENTAL PROTECTION IN BRAZIL

Activities considered harmful to the environment where human beings live and develop are hardly recent occurrences in Brazil. In different ways, they were common before the period of industrial growth, when environmental problems were aggravated by scientific and technological progress, large urban agglomerations and irresponsible land use. They were then viewed differently by the law, being subject merely to administrative measures or to civil suits.

Paulo José da Costa Jr. teaches that this occurred in almost all legal systems. The first legal reaction against environmental pollution was a civil action against harmful "emissions." Such actions were permitted when the property of third parties was damaged (as with water) or when the damage was to *res nullius*, as in the case of the air.[1] Rules to protect water and air used to constitute only a guarantee for particular private or public interests. Because they were totally individualized, these rules were insufficient to halt progressive ecological deterioration. They resulted only determinations of property damage caused by one individual to another.

This privatist conception of the problem resulted in specific legal protection of certain individualized environmental interests, without any consideration of the damage that may have been caused to the community as a whole, to its quality of life or to the necessary conservation of Brazilian natural resources as a way to preserve the world in which we live. Only much later was it possible to give greater importance to the entirety of these goods and interests. This development occurred through a slow process of extension of legal safeguards to other aspects of the environment not previously considered, especially those related to the health and safety in the workplace. The initial concern was with unsanitary or dangerous industries, giving rise to special protective measures for the health and physical well-being of workers, which transcended the mere ascertainment of property interests.

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[1] Paulo José da Costa Jr. & Giorgio Gregori, *Direito Penal Ecológico* 18-19 (CETESB: São Paulo 1981).

Administrative measures for the supervision, inspection or even the prior authorization of activities regarded as pollutive constituted a decisive milestone in going beyond limited private questions. This gave the environmental field public characteristics and a new focus for considering ecological problems. We can now speak of *environmental protection*, supported by legislation that is truly *ecological*. This legislation is intended to regulate the balanced use of natural resources in order to guarantee the preservation of the environment without hindering development and progress. The type of protection that now exists in Brazilian law has come a long way from its origins, when it was subordinated to human interests and activities, which were then deemed the exclusive or at least the most important subject deserving legal protection.

This was the sense in which Articles 554 to 588 of the Brazilian Civil Code,[2] which are still in effect, disciplined *neighboring rights*, which include the injurious use of property, bordering trees, forced easements, water, building set-backs, the right to build and the right to block access. For the same reason, the Civil Code contains other provisions on hunting[3] and fishing.[4] These subjects were later treated separately, but under the same orientation, by the Hunting Code[5] and the Fishing Code.[6] In 1967, when these subjects were reconsidered, development of environmental concerns was apparent in the use of the phrase "Protection of Fauna" to substitute for the word "hunting" and by punishment of offenses to native species, their nests, shelters and natural breeding grounds as penal infractions.[7]

In 1965, a new Forestry Code was enacted that defined forests deserving permanent protection and ordered the creation of National, State and Municipal Parks, as well as *Biological Preserves* "with the goal of safeguarding Nature's exceptional attributes, reconciling complete protection of flora, fauna and natural beauty with their utilization for educational, recreational and scientific purposes."[8] For this purpose, certain offenses were defined as penal infractions. The Commission for Forest Policy was granted the task of execution of forest policy, regulated by Decree-Law No. 289 of February 29, 1967, which also created the IBDR — Brazilian Institute of Forest Development (*Instituto Brasileiro de Desenvolvimento Florestal*).

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2 Law 3.071 of Jan. 1, 1916.

3 *Id.*, arts. 594-98.

4 *Id.*, arts. 599-602.

5 Decree-Law No. 5.894 of Oct. 20, 1943.

6 Decree-Law No. 221 of Feb. 28, 1967.

7 Law No. 5.197 of Jan. 3, 1967. This law created *The National Council for the Protection of Fauna* which, however, was never organized.

8 Law No. 4.771 of Sept. 15, 1965, art. 5.

According to Wilson Bonalume, all these laws could be considered "pre-environmental."[9] Only after the creation of SEMA — Special Secretariat for the Environment (*Secretaria Especial do Meio Ambiente*)[10] and approval by Law No. 6.154 of 1974 of the Second National Development Plan did Brazil have legislation with an eminently environmental stamp. Important statutory measures began to appear, starting with Decree-Law No. 1.413 of 1975, which instituted an urban zoning plan, in order to prevent the concentration of factories and consequent industrial pollution. This was followed by Decree No. 76.389 of 1975, which established critical areas of metropolitan and hydrographic pollution.

This new orientation also stimulated creation of several collegial agencies, designed to plan, execute or supervise all activities capable of jeopardizing effective environmental preservation. One such agency is the Pesticides Commission, an advisory board of the Division of Plant Sanitation Protection, created in 1977.[11] This agency issues opinions on the implications of the use of pesticides for public health and the environment. SUDEPE — Superintendency for the Development of Fishing (*Superintendência de Desenvolvimento da Pesca*)[12] was already working in the field of natural resources. Its principal objective is to provide technical and financial assistance to fishing ventures, as well as to enforce the rules of the Fishing Code.

Another type of concern inspired Law No. 6.453 of October 17, 1977, which defines crimes related to nuclear activities, an area that Brazil was then beginning to enter. This law also imposes criminal and civil liability for actual damages.

In 1979, a statute was enacted regulating the subdivision of urban land. This law prohibits subdivisions in ecological preserves or in areas where pollution creates unacceptable sanitary conditions, until such conditions are corrected.[13] The law also criminalizes certain activities related to subdivisions that constitute crimes against the Public Administration.

This profusion of environmental legislation began to be called "Environmental Law." The field of activity of Environmental Law is constantly expanding to provide necessary support for this new legal discipline. During the last decade, important legal steps were taken to consolidate the gains already made and to reinforce protection of the environment, which has now been formally enshrined among constitutional principles set out in our 1988 Constitution. The main steps in this evolution were:

(a) *Decree No. 85.118 of September 3, 1980.* This Decree established the Third Basic Plan of Scientific and Technological Development, setting out rules for identification of "*natural preserves*" that should be protected in order to

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9 Bonalume, "Crimes contra o Meio-Ambiente," 644 *Rev. Tribunais* 237 (1989).

10 Decree No. 73.030 of Oct. 30, 1973.

11 Portaria No. 610 of Aug. 29, 1977 of the Ministry of Agriculture.

12 Created by Delegated Law No. 10 of Oct. 11, 1962.

13 Law No. 6.766 of Dec. 19, 1979.

prolong their genetic potential. It also programmed land use according to its capacity so as to improve economic and ecological zoning.

(b) *Law No. 6.803 of July 3, 1980.* This law furnished the basic guidelines for *industrial zoning* in critical pollution areas, establishing the requirement of *environmental impact studies*, which are necessary to stop urban environmental abuses arising from zoning practices.

(c) *Law No. 6.902 of April 27, 1981.* This law created *Ecological Stations* and defined *Environmental Protection Areas* where certain exterminating or potentially polluting activities are prohibited.

(d) *Law No. 6.938 of August 31, 1981.* This law created the CONAMA — *National Environment Council* (*Conselho Nacional do Meio Ambiente*), in order to assist the President in the formulation of national environmental policy. The instruments through which this policy is to be carried out are:

- the institution of environmental quality standards
- environmental zoning
- evaluation of environmental impact
- authorization and supervision of actual or potential polluting activities
- incentives for production and installation of preventive equipment
- creation or assimilation of technology addressed to the improvement of environmental quality
- creation of ecological territories and environmental protection areas
- creation of a national information system for the environment.

(e) *Law No. 7.347 of July 24, 1985.* This law created the *Public Civil Action* for liability for damage caused to the environment, to the consumer and to assets and rights of significant artistic, aesthetic, historic, touristic and landscape interest. Its purpose is to obtain either monetary damages or a fulfillment of an obligation to perform or not to perform certain acts. It gives a special role to the Public Ministry in the defense of the environment and the consumer. The Public Ministry or any other governmental body can initiate this type of action; however, if it is not a party to the action, the Ministry will have to act as a guardian of the law.

(f) *Law No. 7.643 of December 18, 1987.* This law prohibited whaling in Brazil's territorial waters. Violations are punishable by both imprisonment and fines.

(g) *Law No. 7.653 of February 12, 1988.* This law modified Law No. 5.197 of 1967, relating to protection of fauna and flora. It converted the penal infractions of the prior law into *crimes against nature and the environment.* Such crimes are now punishable by imprisonment without possibility of bail and are tried in summary proceedings under the Code of Criminal Procedure. This law also established several types of crimes related to fishing, which because of severe criticism, were partially revoked by Law No. 7.679 of November 23, 1988.

(h) *Law No. 7.661 of May 16, 1988.* This law established the *National Coast Management Plan*, an integral part of the National Policy on Ocean Resources and the National Policy on the Environment. This plan is specifically designed to orient the rational use of coastal zone resources, so as to contribute to raising the quality of life of its population and the protection of its natural, historic, ethnic and cultural property.

(i) *The Brazilian Constitution of October 5, 1988.* The Constitution grants the power to legislate on environmental matters to three levels, dividing it among the Federal Government, the States and Counties, with responsibility to protect the environment and to combat any kind of pollution. Chapter VI is dedicated to the environment. Article 225 sets out various aspects of environmental protection and creates legal means for its defense, which we hereby reproduce because of its importance as the basic rules that will support future legislation:

Art. 225. Everyone has the right to an ecologically balanced environment, which is a public good for the people's use and is essential for a healthy life. The Government and the community have a duty to defend and to preserve the environment for present and future generations.

§ 1º To assure the effectiveness of this right, it is the responsibility of the Government to:

I — preserve and restore essential ecological processes and provide for ecological management of the species and ecosystems;

II — preserve the diversity and integrity of the Country's genetic patrimony and to supervise the entities dedicated to research and manipulation of genetic material;

III — define, in all units of the Federation, territorial spaces and their components that are to be specially protected, with any change or and suppression permitted only through law, prohibiting any use that compromises the integrity of the characteristics that justify their protection;

IV — require, in the form of the law, a prior environmental impact study, which shall be made public, for installation of works or activities that may cause significant degradation of the environment;

V — control the production, commercialization and employment of techniques, methods and substances that carry a risk to life, to the quality of life and to the environment;

VI — promote environmental education at all levels of teaching and public awareness of the need to preserve the environment;

VII — protect the fauna and the flora, prohibiting, in the form of the law, all practices that jeopardize their ecological functions, cause extinction of species or subject animals to cruelty.

§ 2º Those who exploit mineral resources are obligated to restore any environmental degradation, in accordance with technical solutions required by the proper governmental agencies, in the form of the law.

§ 3º Conduct and activities considered harmful to the environment shall subject the infractors, be they individuals or legal entities, to penal and administrative sanctions, in addition to the obligation to repair the damages caused.

§ 4º The Brazilian Amazon Forest, the Atlantic Woods, the Serra do Mar, the Pantanal of Mato Grosso, the Coastal Zone are the national patrimony, and they shall be utilized, in the form of the law, under conditions assuring preservation of the environment, including use of natural resources.

§ 5º Vacant lands or those reverted to the States through discriminatory actions, which are necessary to protect natural ecosystems, are inalienable.

§ 6º Power plants with nuclear reactors shall be located as defined in federal law; if not, they may not be installed.

(j) *Law No. 7.679 of November 23, 1988.*

This law prohibited fishing of certain species during their reproductive period and under certain circumstances, with certain exceptions for amateur or native fishermen. The law punished administrative infractions, resering penal infractions for the criminal law.

(k) — There is no letter K.

(l) *Law No. 7.735 of February 22, 1989.*

This law created INAMA — National Institute for the Environment and Renewable Resources (*Instituto Nacional do Meio Ambiente e dos Recursos Renováveis)*, a governmental autarchy linked to the Ministry of the Interior. Its functions are to coordinate the execution of the National Environmental Policy, and to assume the functions of other agencies abolished by the Law, namely: The Special Environmental Bureau (SEMA), the Superintendency for the Development of Fishing (SUDEPE), the Brazilian Forest Development Institute (IBDF) and the Rubber Superintendency (SUDHEVEA).

This unification, however, did not encompass all the agencies administering or supervising natural resources. Marine resources continue to be supervised by the Navy Ministry, minerals by the Ministry of Mines and Energy, pesticides by the Ministry of Agriculture, cultural patrimony by the Ministry of Culture, and food and water by the Ministry of Health. In addition, the National Environmental Council (CONAMA) continues to be the appropriate body to decide on the direction of environmental protection policy in Brazil. Some of these powers were modified in the recent ministerial reform carried out by President Collor de Mello, who abolished some ministries, among them those of Culture and Mines and Energy.

(m) *Law No. 7.802 of July 11, 1989.*

This law regulated the use of pesticides in agriculture and created certain penal infractions for this activity.

(n) *Law No. 7.804 of July 18, 1989.*

This law amended several prior laws — Law No. 6.803/80, Law No. 6.902/81, Law No. 6.938/81 and Law No. 7.735/89. It also restructured the agencies charged with the execution of the National Environmental Policy, reformulated the National Environmental System (SISNAMA), created the Superior Environmental Council (*Conselho Superior do Meio Ambiente*) (CSMA) and instituted the Environmental Defense Registry to catalogue environmental resources and potentially polluting activities.

CSMA is the highest organ of the System, with the function of advising the President of the Republic in the formulation of national policy and guidelines for the environment and natural resources. It is composed of 13 Federal Ministers, the Special Secretary for Science and Technology, a representative of the Federal Public Ministry, a representative of the Brazilian Society for the Progress of Science (SBPC), three representatives of the Legislature and 5 Brazilian citizens nominated by a group of non-governmental environmental organizations.

CONAMA continues as a advisory body to study, advise and propose governmental political guidelines for the environment and natural resources to CSMA. It also has jurisdiction to review environmental impact studies and their respective environmental impact reports, in cases of works or activities involving significant environmental deterioration that occur in areas deemed national patrimony by the Federal Constitution.

The prior law's INAMA was converted into IBAMA (*Instituto Brasileiro do Meio Ambiente e Recursos Naturais Renováveis*) — the Brazilian Institute for the Environment and Renewable Natural Resources — which also supplants SEMA. IBAMA is designated the central federal organ to coordinate, execute and secure compliance with national policy and governmental guidelines for the environment. It is also charged with the preservation, conservation and rational use, supervision, control and stimulation of environmental resources. It must issue an annual Report on the Quality of the Environment.

Finally, this law also defined the *criminal offense* of *Pollution*, giving a new wording to Article 15 of Law No. 6.938 of 1981.

(o) *Decree No. 98.914 of January 31, 1990.*

This decree instituted *Private Natural Patrimony Reserves*, so designated by their owners, to be registered with IBAMA in perpetuity. Such reserves are "private real property, in all of part of which are identified primitive, semi-primitive, or recuperated natural conditions or those whose characteristics justify recuperative actions, either for their scenic aspects or for the preservation of the biological cycle of species of fauna or flora native to Brazil." These reserves are intended to receive the same protection granted under the law to permanent forest preserves and to areas of public interest, without prejudice to the right of property. One need only make application and comply with the required formalities.

(p) *Decree No. 99.274 of June 6, 1990.*

This decree regulated Laws Nos. 6.902/81 and 6.938/81. The former provided, for the creation of *Ecological Stations* and *Areas of Environmental Protection*, and while the latter provided for the National Environmental Policy, the composition of CONAMA, the rules for carrying out the National Environmental Policy at different levels of government, and recommended the installation, in critical pollution areas, of a permanent system of measurement of local indices of environmental quality and other measures for the control of actual or potential pollutant activities, seeking to make economic development compatible with protection of the environment and ecological balance.

(q) *Decree No. 99.280 of June 6, 1990.*

This decree promulgated the Vienna Convention and the Montreal Protocol on the Protection of the Ozone Layer, to which Brazil adhered on March 19, 1990.

This impressive array of legislation has hardly exhausted the area of environmental protection. This subject continues to produce new efforts to perfect protection of the Brazilian environment.

II. ENVIRONMENTAL CRIMINAL LAW

The final stage of the slow evolutionary process of the legal protection of the environment is criminal law. In recent years, penal sanctions have been added to civil and administrative protection, as the *ultima ratio* of the security and deterrent effect that a legal rule can offer to the more important assets and interests of society and to deter their violations. With all its repressive and punitive characteristics, which are at the same time preventive, the Criminal Law may be more effective for showing society's condemnation of acts that endanger or attack nature and the goods nature offers us. The Criminal Law may be used when administrative measures seeking to restrain or control, fail or are insufficient, or when the rules of Civil Law are not applicable. In fact, the three areas coexist without conflict and together can undoubtedly offer measures applicable to concrete cases.

The opportunity and necessity for intervention of the Criminal Law in the ecological area has already been the subject of controversy and opposition. Today such intervention is unquestionably guaranteed by a constitutional rule in Brazil; the 1988 Federal Constitution included among the guarantee of the social right of a citizen in Article 225:

> Conduct and activities considered harmful to the environment shall subject the infractors, be they individuals or legal entities, to penal and administrative sanctions, in addition to the obligation to repair the damages caused.

The criterion for authorizing intervention of the Criminal Law into the area of protection previously carried out only by regulatory norms was the *harmfulness of the conduct or activity*, which translates into concrete terms by the *harm* or *danger* it represents to assets of the environment, man and other living things in nature, in a *direct or indirect fashion*. In the words of Paulo José da Costa Jr. and Giorgio Gregori, "Thus are born the bases for creation of a truly *social penal law*, that is, a penal law that offers support and protection for those values of man who operates in a society."[14]

In order to achieve its proposed goals, the Criminal Law has been constructing truly *ecological types of offenses*, systemized within *special laws*, in accordance with the protection granted to certain specific assets of the environment. On the other hand, there is a tendency to include these offenses in ordinary criminal legislation, as part of the future reform of the Penal Code already in progress. Considering that *Environmental Criminal Law* (or *Ecological Criminal Law* as some would prefer) is part of a broader category, today recognized as *Environmental Law*, it would be more appropriate to retain it within the ambit of *Special Criminal Legislation*, because of the greater rapidity and flexibility in the transformation of its rules and because of the need for continuous creation of new types of criminal behavior.

[14] da Costa Jr. & Gregori, *supra* note 1 at 28.

Certain special features may be noted in the formulations of *Environmental Criminal Law* that contribute to its particularity. These features include:

1. THE ELEMENTS OF THE ECOLOGICAL TYPE OF CRIMINAL OFFENSE

The complexity of goods and interests included in the subject of ecology sometimes makes it difficult to individualize the legal interests safeguarded by ecological types of criminal offenses, even though these may always be identified by the fact that they contain the idea of conserving or insuring in some form the preservation of the environment and assets of nature. They often appear as *multiple offense crimes*, listing numerous forms of conduct or legal objectives that are directly protected by the law. Nevertheless, other offenses refer to assets of nature such as water, air and animal life, only as means to insure the integrity of higher values, such as life or people's health. Sometimes the preservation of nature itself is done by criminalizing potentially dangerous activities, as occurs with crimes relating to nuclear activities. These types of criminal offenses offer either immediate protection to assets of the environment or indirect protection, when they are obliquely guaranteed, at times in a manner that makes the exact comprehension of their meaning difficult. The harm to the legal interest in such cases does not depend so much upon the elements of the offense, but rather upon situations outside it, frequently axiological, that are to be evaluated by the judges in concrete cases.

To aid in classification, it is common to insert in ecological criminal laws recourse to concepts explicitly stated by the legislature itself to define the scope of the law's application, as well as references to technical norms outside the law. Likewise, "in blank" criminal rules (*normas penais em branco*) are regularly used in Environmental Criminal Law. These rules refer to other legal or administrative prescriptions, which furnish the real substance of the criminal offense. The type of offense is sometimes undetermined, which reveals a certain reluctance on the part of legislator to state the exact limits of the protection to be exercised, in prejudice to clarity of specification and certainty in punishment. Such vagueness should always be avoided in the drafting of criminal laws. In any event, ecological crimes should be understood as offenses against all of collective society, despite the possibility of the existence of individual damages, which should be determined in another judicial sphere.

2. THE LEGAL NATURE OF ECOLOGICAL CRIMES

The majority of ecological crimes are for *endangerment*, either by an express reference to a situation of threat or the probability of harm to a protected legal interest, or by the objective shown by criminalizing determined conduct. There are,

however, *crimes of damage*, where actual injury to the legal interest must be proven, in order for the crime to be consummated; this is the case with many offenses against plant and animal life. The greater number of infractions characterized by *endangerment* is due to the practical impossibility of proving a causal connection between conduct and its resulting in certain ecological offenses, such as pollution, or because of the possibility of the contribution of several factors to a determined harm to the environment. In such cases, the moment of consummation of these crimes will be the moment of threat to the legal interest, with the possibility or probability of causing an injury.

It should be emphasized that the doctrine unanimously considers this the most appropriate way to repress and prevent criminal ecological conduct, principally because of the multiplicity of threats that can occur. Threats can create a concretely dangerous situation as well as an abstract or presumed danger. If the situation provided for in the infraction is one of concrete danger, it must be proven in each specific case; however, in cases of abstract danger, this proof will not be necessary, because the rule results from a legislative presumption that the conduct threatens the interest sought to be protected.

In truth, the modern trend in ecological infractions is a preference for applying penal protection before actual damage occurs to the legal interest, thus setting up a forward line of defense. This may range from simple seizure or halting of production of toxic substances or pollutants. The majority of types of crimes in this field constitute *crimes of mere conduct*, often characterized by mere disobedience of the orders of administrative authorities. On the other hand, crimes punishing mere negligence are rare. The legislature has required malice (*dolo*) as the mental element of most offenses, even though certain omissions could have been characterized as a form of negligence.

3. CRIMINAL LIABILITY FOR ECOLOGICAL CRIMES

Criminal liability is determined by fault, a topic of major importance to modern Criminal Law, and the subject of various theories that give greater emphasis to the normative element of conduct. Without going into greater depth with respect to the question of fault in modern Brazilian doctrine, which appears to be as much psychological as it is normative, it is important to remember that ecological crimes can require either malice or negligence. However, under the rules of Article 18 of the Penal Code, which are also valid for special legislation, criminal negligence can only be punished when it is expressly mentioned in the statute. If the statute is silent, it is understood that malice is required, and conviction depends upon proof of the conscious will of the actor committing the crime, in addition to the non-existence of justifying factors or those excluding liability. In lesser penal infractions, however, mere proof of the voluntary nature of the conduct, or its spontaneity, is sufficient; proof of either malice or fault is unnecessary to impose liability. The majority of ecological crimes do not mention negligence and are, therefore, only punishable upon proof of malice. Nevertheless, attempts have been made in both case law and doctrine to apply constructive malice as more appropriate for ecological offenses where the actor understood the

risk that the damage may become concrete, even though he did not necessarily will the harm directly.

Another possibility common to ecological subjects is the recognition of *criminal liability by deducing malice*, which has been done by the courts in certain cases in which the action has been carried out without prior approval by governmental authorities, or in violation of their rules. In such circumstances, the courts have deemed implicit the will to perform out the prohibited or unauthorized conduct.

A related question is whether it is possible to impose criminal liability for ecological violations on firms or corporations, as occurs in the laws of other countries. In Brazilian criminal law, this is not permissible, for the entire system is oriented towards the determination of individual responsibility. Sanctions are only applicable to *individuals*, since they are principally deprivations of liberty. The subject has been debated once again with the promulgation of the 1988 Constitution. Article 225 § 3 mentions that: "Conduct and activities considered harmful to the environment will subject the violators, be they individuals or legal entities, to penal and administrative sanctions, in addition to the obligation to repair the damages caused." By designating both individuals and legal entities as *ecological violators*, the Constituent Assembly, in the view of some commentators, has opened the door to a new positioning of Criminal Law in the future, with the abolition of the principle presently in effect that "societas delinquere non potest."

At the present time, however, offenses committed by firms, corporations, or legal entities of public law, must be dealt with administratively. Penal sanctions are reserved for their officers, directors or legal representatives, if liability can be imputed to them for the harmful or dangerous act by reason of their fault in its commission. This is so even though the sanctions of fines and restrictions on rights are sanctions perfectly applicable, in theory, to legal entities as well as to individuals.

4. SANCTIONS UNDER ENVIRONMENTAL CRIMINAL LAW

Environmental Criminal Law has adopted the classic sanctions of ordinary Criminal Law, which are deprivation of liberty and fines, regulated by the Penal Code and by the Law of Penal Enforcement.[15] In the majority of ecological crimes, the sanction is reclusion. Detention is less frequent, and fines are imposed either in place of or in addition to the deprivation of liberty. In one unique case, established by the Law of Penal Infractions,[16] the punishment is only pecuniary, since the legislator preferred to leave punishment to the administrative area.

Alternatives to imprisonment, such as restrictions of rights, today in vogue in criminal law, were not utilized. Some of these alternatives are: rendering community service, temporary interdiction of rights, and weekend imprisonment. Nevertheless, only one of these means of restriction of rights would, in principle,

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[15] Law No. 7.210 of Jy. 11, 1984.

[16] Decree-Law No. 3.688 of Oct. 3, 1941.

be appropriate to the nature of ecological infractions: the prohibition on practicing a profession, activity or office that depends upon special qualification, license or authorization from the government. Its applicability is limited by Article 56 of the Penal Code, however, to cases where there has been an abuse in the practice or activity, or a breach of duty in connection therewith.

Penalties of imprisonment are usually seriously criticized for the deleterious effects that prison has upon the convict, and by its inability to achieve the social rehabilitation of the criminal. It must be kept in mind, however, that Environmental Criminal Law has a secondary function, when compared with administrative regulation of ecological questions, namely that it should only interfere in the gravest cases of harm or threat to environmental interests. Accordingly, greater severity can be justified, since the criminal justice system will only see the most serious cases. These demand more rigorous suppression to achieve the desired effects of general and special protection contained in the law.

Greater prominence, however, should be given to the fine as a *penal sanction* for ecological crimes. A fine can be employed as the only penalty, but it should create significant burdens that will discourage the wrongdoer and other probable wrongdoers from committing the prohibited conduct. Only in this way will the fine function as an efficacious alternative to imprisonment.

III. ECOLOGICAL CRIMES

Notwithstanding the efforts of interested parties, protection of the environment by ordinary Criminal Law has shown itself insufficient to reach all aspects necessary to transform it into an efficient instrument for combatting aggression to rights and interests that Ecology has made prominent in recent years, and which require more intense deterrent action to prevent harm. The classification of illicit conduct made by our ordinary penal law is quite old, and therefore out of date. The Brazilian Penal Code[17] is one half century old. Even though its General Part was reformulated in 1984, the Special Part, which lists the crimes and their penalties, continues in effect. This Part is awaiting reform, which has been proposed but whose implementation is uncertain. The Penal Code's protection of the environment is today totally inadequate, dating from a time when ecological problems either did not make themselves felt, or were not as extensive as are today.

The Law of Penal Infractions,[18] through which the legislator of 1940 divided criminal behavior into two, and which covers offenses of lesser danger or seriousness, is also out of date. This Law, which has only *one* infraction of an ecological nature, is the subject of reformist criticism.

Environmental crimes are better dealt with in the so-called *special penal laws*, which have recently come to fill the gaps and to satisfy the most pressing needs. Those laws are enacted when administrative sanctions are insufficient or are

[17] Decree-Law No. 2.848 of Dec. 7, 1940, as amended by Law No. 7.209 of July 11, 1984 — the new General Part.

[18] Decree-Law No. 3.688 of Oct. 3, 1941.

not suitable to deal with the offenses committed, or when these exceed tolerable limits, creating widespread social disapproval. For some, there is even a certain convenience in leaving infractions against the environment uncodified, outside the Penal Code. This is the view of Esther de Figueiredo Ferraz in her study on criminal pollution of drinking water:

> We feel, with all due respect, that the disciplining of ecological crimes should remain for a while outside the context of the Penal Code. This is because the material, considered *per se*, is still the cause of perplexity. It is possible that the precepts comprising the general part of that Code should not be applied in their totality. It would be more advisable, in our view, for penal treatment of ecological aggression to be carried out by isolated laws until an opportune moment — after the trial balloons had been adequately tested — before their incorporation into the Code itself.[19]

We shall now review the ecological infractions provided in ordinary legislation and in the special penal statutes.

1. THE BRAZILIAN PENAL CODE:

Few ecological crimes are explicitly or implicitly contained in the Code. *Explicitly*, the environment is present as an object of protection in only two crimes, included among *crimes against the public health*: the poisoning of potable water, food or medicine, and the corruption or pollution of potable water. The Code states:

> Art. 270 — Poisoning potable water of private or common use, or foodstuffs or medicinal substances designed for consumption:
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> Penalty — reclusion for five to fifteen years.
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> § 1 — One who delivers the poisoned water or substance for consumption, or has it stored for later distribution, is subject to the same penalty.
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> § 2 — If the crime is committed through negligence:
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> Penalty — detention from two months to one year.
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> Art. 271 — Corrupting or polluting potable water of private or common use, making it unfit for consumption or harmful to health:
>
> Penalty — reclusion, from two to five years.
>
> Sole paragraph — If the crime is committed by negligence:
>
> Penalty — detention from two months to one year.

Both cases deal with *water pollution*, but only that of water shown to be *potable*, a controversial criterion that can be understood in two ways: that of biochemically pure water, or that of water in a condition to be ingested by human beings without risk to their health.

[19] "O crime de poluição de água potável," in *Estudos em Homenagem ao Professor Silvio Rodrigues* 127-28 (Saraiva: São Paulo 1989).

For Nelson Hungria, potable water is water "free from unhealthy elements or fit to drink, permitting its alimentary use. It need not be irreprehensively pure. It only need be habitually ingested by an undetermined number of persons."[20] Case law has also adhered to this position, deeming water potable when it is "of good quality, which serves for drinking and cooking," as the phrase appears in countless decisions.

The water being protected may be surface or subterranean. It does not matter whether it is found in rivers, streams, lakes or reservoirs. However, it has been held that there is no crime if the water was already polluted, since in this case it would not be potable. In this case, Benjamin de Moraes states: "It is clear that the polluter of already polluted water could receive an administrative penalty. As it is a universal duty to fight pollution, the polluter cannot aggravate a serious ecological problem of the region."[21]

It is obvious that the legislator in 1940 did not intend to protect water as an asset of the environment *per se*, without regard to its consumption and to its harmfulness to health. But since the statute did not specify expressly what was the purpose of the consumption, Paulo Affonso Leme Machado argues that, in a more modern interpretation, the harmfulness could be to both human health and to that of animal life.[22] Because this is a *crime of endangerment*, as readily appears from its very wording, it is not necessary for the water to be consumed in order for the crime to be proven, nor must the occurrence of any specific disease be proven. The subjective element is malice, even if constructive, but in both cases the negligent commission of the crime is provided for, with a considerably lighter penalty where the harmfulness results from negligent or imprudent behavior of the actor. In this, as in other environmental crimes, there may be difficulties in the characterization of the criminal liability of the actor or actors, who may be either private parties, civil servants, or employees of governmental or mixed capital companies.

Even though there are no other specifically ecological offenses listed in the Penal Code, it may be argued that certain offenses to the environment are *implicitly* contained within the terminology of Article 163 (*damage*) or Article 132 (*endangerment of another's life or health*). In the first case we have the offense of damage to private or public patrimony, which includes the destruction of animals, trees or plants, characterized in the following terms:

> Art. 163 — Destruction, rendering useless or deterioration of the property of another
>
> Penalty — detention of one to six months, or a fine.
>
> If the crime is committed:
>
> I — with violence to a person or grave threat thereof;

[20] Nelson Hungria, 9 *Comentários ao Código Penal* 107 (Forense: Rio 1958).

[21] Moraes, "Direito Penal Ecológico," 63 *Revista de Informação Legislativa* 192 (Jy./Sept. 1979).

[22] Paulo Affonso Leme Machado, *Direito Ambiental Brasileiro* 260 (Rev. Trib.: São Paulo 2d ed. 1989).

> II — with the use of an inflammable or explosive substance, where this act does not constitute a more serious crime;
>
> III — against the patrimony of the federal, state and county governments, or a public utility company or a mixed capital company;
>
> IV — for selfish reasons or with substantial prejudice to the victim:
>
> Penalty — detention, from six months to three years, and a fine besides the penalty, corresponding to the violence.

In the second case, we have an instance of the *exposure to danger* in general, with a secondary characteristic: it is only applicable to an act that constitutes a direct and imminent danger to the life and health of someone, and which is not otherwise expressly identified as a crime under other provisions of the law:

> Art. 132 — Expose the life or health of another to direct or imminent danger:
>
> Penalty — detention from three months to one year, if the act does not constitute a more serious crime.

These two crimes require malice. Merely negligent commission is not a crime, which makes them extraordinary difficult to apply in the case of ecological offenses.

One can consider one of the forms of *arson*, which is an ordinary crime, committed maliciously or negligently, as well as the crime of *spreading an infectious or contagious disease*, as indirect forms of penal protection of the environment. These offenses are defined in Articles 250 and 259 of the Penal Code.[23]

2. THE LAW OF PENAL INFRACTIONS

The only reference to assets of the environment in this penal law relates to air pollution and is implicit in the provisions of Article 38, which refers, in an insufficient and almost innocuous way to "the emission of smoke, steam or gas" as an offense against public safety:

> Art. 38 — Provoke abusive emission of smoke, steam or gas, that can offend or molest someone:
>
> Penalty — fine of forty centavos to 4 cruzeiros.

[23] Art. 250 — Setting fires, exposing the life, physical integrity or property of another to danger:
Penalty — reclusion from three to six years, and a fine.
§ 1 — The penalties shall be increased by one third:
I — if the crime is committed with the intention to obtain pecuniary benefit for the agent or another;
II — if the arson is . . . (h) on crop land, pasture land, woods or forest.
§ 2 — If the arson is negligently committed, the penalty is detention from six months to two years.
Art. 259 — Spreading infectious or contagious disease that may cause harm to econonically useful forests, crops or animals:
Penalty — reclusion from two to five years and a fine.
Sole paragraph — In the case of negligent commission, the penalty is detention from one to six months, or a fine.

The ridiculously low value of the fine remains even after the up- dating in 1984 by Law No. 7.209. Hence, it constitutes an inadequate and extremely light punishment, especially when one considers the harmful consequences that the crime has for the environment and to nature, and that its purpose of the statutory provision is to prevent harm to humans. This is a *penal provision in blank*, in the sense that the rule depends upon another to give content to the offense. Thus, in order to characterize the act as an emission offensive to the health or tranquility of someone, it is necessary to place it within the standards or rules that the government has issued to regulate the emission of pollutants into the air or to fix air quality standards. Moreover, as Paulo Affonso Leme Machado has observed, "The emission of polluting agents be measured at the source of the emission and not at the place of reception, and the infraction should occur even if the pollutant does not reach the place where the victim is found in a quantity capable of causing him harm or disturbance."[24]

3. SPECIAL PENAL LEGISLATION

Several ecological offenses are included in uncodified laws covering relationships or acts referring to various aspects of environmental protection or the preservation of nature, which the state has recently been at pains to guarantee. We may group these infractions in different categories, according to the legal interest to be protected.

(a) Crimes against Plant Life (Flora)

The Forest Code[25] recognizes forests and other useful forms of vegetation covering the country as *public goods for the people's common use*. Article 26 criminalized various forms of aggression against the forests.[26]

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[24] Machado, *supra* note 22, at 287.

[25] Law No. 4.771 of 1965.

[26] Art. 26 — The following are penal infractions, punishable by three months to one year of simple imprisonment or a fine from one to 100 times the monthly minimum salary in effect on the date of the infraction, or both:
(a) destroy or damage forests of permanent preservation, even if in formation, or use them infringing the rules established or mentioned by this law;
(b) cut down trees in forests of permanent preservation, without authorization from the competent authority;
(c) enter into forests of permanent preservation carrying arms, substances or instruments designed for prohibited hunting or for the exploitation of forest products or by-products, without having a license from the competent authority;
(d) cause damage to National, State and Municipal parks, as well as to Biological Reservations;
(e) make a fire, in any way, inside a forest or other form of vegetation, without taking adequate precautions;
(f) make, sell, transport or release balloons that might cause forest fires or fires in vegetation;
(g) impede or hinder the natural regeneration of forests and other forms of vegetation;
(h) receive wood, firewood, charcoal and other products coming from forests, without demanding production of the seller's license, issued by the competent authority, and without keeping the copy thereof that should accompany the product to its final industrial processing;
(i) transport or store wood, firewood, charcoal and other forest products, without a license valid for the entire term of the trip or storage, issued by competent authority;

Article 28 of the Law, an absolutely unnecessary provision, established that in addition to these infractions "the provisions on infractions and crimes contained in the Penal Code, and those of other laws, continue in effect with the penalties provided for therein." Article 30, which is also unnecessary, provides that the general rules of the Penal Code and the Law of Penal Infractions are applicable to the above infractions, whenever the law does not provide differently. This would obviously be the case under the prevailing principles of the general theory of criminal law, and mentioning them was therefore unnecessary. With respect to the elements of the offense, these violations are classified as infractions, and neither malice nor negligence is required. The mental element can be shown simply by only the voluntary nature of the act; that is, a spontaneous act or omission which results in harm or danger to the protected interests.

The criminal act may be directly or indirectly committed. Liability can be imposed upon lessees, partners, squatters, managers, officers, directors, owners or assignees of forest areas, if the criminal act is committed by their agents or subordinates, in benefit of their principals or superiors. Also punishable, according to Article 29, are "authorities who fail to act, or permit the commission of the act by illegally consenting thereto." Certain aggravating circumstances are provided in Article 31, without excluding those existing in the Penal Code and in the Law of Penal Infractions.[27] The law further provides that the criminal action does not depend upon the filing of charges by an individual, even if private property is involved, whenever the affected property is a forest or other form of vegetation, or tools, documents and actions relating to forest protection. The fine provided for must be calculated according to the provisions of Law No. 6.205/75, which replaced the minimum salary with the Minimum Reference Value (MVR).

(b) Crimes against Animal Life (Fauna)

By animal life is meant the whole set of animal species of a determined country or region. It has been constitutionally classified as a *public good for the people's use* to be protected against practices that place at risk its ecological

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(j) fail to return to the authorities, expired licenses or extinguished by delivery to the consumer of the forest products;
(k) (the "k" is not used)
(l) use forest products or coal as fuel, without using means to prevent the scattering of sparks that might cause forest fires;
(m) release animals, or not take necessary precautions to avoid that one's animals enter forests subject to special protection;
(n) kill, harm or mistreat in any way or fashion, ornamental plants in public parks or the private property of third parties, or trees that may not be felled;
(o) remove rock, sand, lime, or any type of mineral from forests that are public preserves or of permanent preservation, without prior authorization;
(p) (vetoed)
(q) convert hardwood into charcoal, including for industrial purposes, without a license from the competent authority.

[27] These aggravating circumstances are:
(a) to commit the infraction during seedfall season or sprouting growth of the harmed vegetation, during the night, on Sundays or holidays, or in a time of drought or flooding;
(b) to commit the infraction against a forest of permanent preservation, or products coming therefrom.

functions, provoke the extinction of species, or subject animals to cruelty.[28] Although animal life is the subject of concurrent legislative jurisdiction between the Federal Government and the States, only the Federal Government has jurisdiction to legislate on *Criminal Law*, and consequently, to establish ecological offenses and their penalties.[29] The Federal Government also has a monopoly on regulation of hunting and on forest wildlife, composed of animals of whatever species, in any phase of development, living naturally rather than in captivity.

To protect wildlife, professional hunting is prohibited in Brazil. When regional characteristics allow the practice of amateur hunting, permission must be granted by a regulation of the Federal Government. This permission does not obviate the need to obtain permission from the owner to use, track, hunt or trap species of forest wildlife found on private property; the owner is responsible for monitoring activity.[30]

Law No. 5.197/67, which protects animal life, characterized certain types of conduct towards fauna as criminal. It was Law No. 7.653/89, however, despite being incomplete, that intensified the penal protection today bestowed upon animal life by making certain infractions under previous legislation not subject to bail and by imposing stricter penalties, as well as by broadening the protection granted to fish, rewording several of the provisions of Law No. 5.197/67. Examination of the two legal statutes today in effect, considering the penalties called for, leads to the conclusion that two categories of *crimes against animal life* exist:

(1) *Crimes punished by reclusion from 2 to 5 years include:*[31]

1. The practice of professional hunting;

2. Trade in wildlife specimens and products or objects implying their hunting, tracking, destruction or trapping;

3. The absence of an inventory declaration of an individual or legal entity that has a license to trade in animal products and wild animals;

4. The exportation of skins or leather of amphibians and reptiles;

5. Causing fishkills in rivers, lakes, reservoirs, lagoons, bays or the Brazilian territorial sea, by direct or indirect use of pesticides or any other chemical substance.

(2) *Crimes punished by reclusion from 1 to 3 years:*[32]

1. Use, tracking, hunting or trapping of animals of any species, at whatever stage of development, that naturally live out of captivity, and make up wild life, as well as their nests, dens and natural breeding grounds;

[28] Const. of 1988, art. 225 § 1 (VII).

[29] *Id.*, art. 22.

[30] Articles 594-598 of the Civil Code are applicable to hunting, while Articles 599-602 are applicable to fishing.

[31] These crimes are referred to in Articles 2, 3, 17 and 18 of Law 5.197/67, according to Article 27.

[32] These infractions already listed as penal violations in Articles 1, 4, 8, 10 and 14 § 3 of Law 5.197/67.

2. Introducing any species into the country without a prior favorable opinion and license, in the terms of the law;

3. Illegal hunting of species listed by the competent authorities, or in prohibited places;

4. Use, tracking, destruction, hunting or trapping of specimens of wildlife:

(a) with lures, slings or slingshots, poison, fire or traps that mistreat the quarry;

(b) with firearms within 3 km of any rail or roadway;

(c) with 22 caliber arms for animals larger than the tapiti (*silvilagus brasiliensis*);

(d) with traps using firearms;

(e) in cities, suburbs and towns, mineral and weather spas;

(f) in governmental establishments and public reservoirs, as well as in adjacent lands, up to a distance of 5 kilometers;

(g) within 500 meters of either side of the center line of railways and public highways;

(h) in areas designated for protection of flora, fauna and natural beauty;

(i) in zoos, public parks and gardens;

(j) outside hunting season, even on private property;

(k) (the "k" is not used)

(l) at night, except in special cases and for predators;

(m) from inside motor vehicles.

5. The use for commercial or sport purposes of licenses granted to scientists or scientific institutions for the collection of material for scientific purposes, at any time.

Law No. 7.653/88 brought two significant innovations,[33] providing for two types of crimes against ichthyological fauna: the *extermination of specimens of fauna* and *predatory fishing*. "Predatory fishing" was the object of much argument, with people finally concluding that the definition of the crime was poorly written and could lead to ambiguity; hence it was replaced by a later law, in which it is now defined as:

> Art. 8 — Violation of the provisions of Art. 1-IV (a) and (b) above is a crime punishable by reclusion from 3 months to one year.
>
> Art. 1 — It is forbidden to fish: . . . IV — through the use of (a) explosives or substances that produce the same effect upon contact with water; (b) toxic substances . . . .[34]

[33] This law also changed Law No. 5.197/67.

[34] Law No. 7.679 of Nov. 23, 1988, art. 8.

Thus, the law sought to avoid the intentional use of instruments that lead to predatory fishing, and that provoke the decimation of large numbers of fish, with irreparable damage to nature. The penalty, although still that of reclusion, was lessened in relation to that previously applied, which was alleged to be the ruin of vast numbers of Brazilian fishermen.

Article 29 of Law No. 5.197/67 sets out some aggravating circumstances:[35]

If a foreigner commits an ecological crime, he can be expelled from Brazil after serving the penalty imposed upon him. The penalties are imposed not only upon the direct or indirect perpetrators, but also upon the authorities who, through action or omission, consent in practice to the commission of an illegal act, or who abuse their power.

Under the pressure of an international movement designed to make public opinion aware of the possibility of extinction of whales, Brazil enacted measures regulating the hunting of whales and other cetaceans. Articles 1 and 2 of Law No. 7.643/87 define the criminal activity in a technically incorrect fashion:

> Art. 1 — Hunting or any other form of intentional molestation of all species of cetaceans in Brazilian territorial waters is prohibited.
>
> Art. 2 — Violation of the provisions of this law shall be punished by 2 to 5 years of reclusion and fine of 50 to 100 OTNs (Treasury bonds), the ship being forfeit to the Government in case of repeated offenses.

Thus, the criminal definition embraces not only fishing but also all acts comprehended within the term "molestation", such as bothering, mistreating harming physically, etc. This law has an improper penalty under the Penal Code, which abolished accessory penalties, and replaced them with penalties restricting rights. Law No. 7.643 mentions the loss of the vessel in case of repeated offenses as a type of accessory penalty, to be applied together with the principal penalty, which is imprisonment together with a fine. Notwithstanding its defects, the law has the merit of impeding the legal hunting of these animals, by making it a clandestine act and subjecting it to severe penal suppression.

(c) Nuclear Crimes

When nuclear reactors first began to be used in Brazil, the idea that a nuclear accident could threaten the existence or physical integrity of part or all of the population of the country and also affect its natural resources was so terrifying that the legislature became preoccupied with the prevention of damages or danger that the incorrect or negligent use of this resource could occasion, as shown by the experience of other countries. *Law No. 6.453 of October 17, 1977* seeks to avoid damages and risks to the population at large and indirectly to the environment by providing for civil liability for nuclear damages and for *criminal liability for acts related to nuclear activities*. It also seeks to implement the two requirements of

[35] These aggravating circumstances are:
(a) to commit the infraction during a season when hunting is prohibited or at night;
(b) to utilize fraud or breach of confidence;
(c) to take undue advantage of a license from the authorities;
(d) to commit the infraction in relation to wildlife or their products coming from areas where their hunting is prohibited.

Article V of the Brazil/Germany Cooperation Agreement in the field of peaceful uses of nuclear energy.[36]

Eight crimes were defined in the law in connection with the use of nuclear energy, alongside other rules that impose civil liability for damages caused by nuclear accidents. Although no mention is made of environmental interests, it is undeniable that protection of nuclear activities is only justified as a means absolutely required for the protection of greater interests, such as life and integrity of all beings in nature, animal or vegetable, upon which the very survival of mankind is conditioned. Thus, they may be considered indirect ecological violations.

(1) *Improper use of nuclear material*

> Art. 20 — Produce, process, furnish or use nuclear material without the necessary authorization, or for purposes other than those permitted by law:
>
> Penalty — reclusion, from four to ten years.

According to the definition contained in the Law itself, "nuclear material" includes nuclear fuel and radioactive products or by- products. "Nuclear fuel," in turn, is all that is capable of producing through energy a self-sustaining process of nuclear fission. "Radioactive products or by-products" are radioactive materials obtained during the process of production or utilization of nuclear fuels. The competent body to grant the authorization referred to in the law, for the first type of conduct, is the National Nuclear Energy Commission. For the second type, "use of other purposes," the legislative intention was to prevent the illicit use of the material by employees of governmental bodies themselves.

(2) *Irregular operation of a nuclear installation*

> Art. 21 — Allow a nuclear installation to operate without the necessary authorization:
>
> Penalty — reclusion, from two to six years.

This is a separate crime, which can be committed by the person responsible for the nuclear installation, before the authorization has been supplied by the National Nuclear Energy Commission. For lower-level employees who participate in the action, the excluding principle contained in Article 22 of the Penal Code is fully applicable. This limits punishment to the person giving the order, if the act was committed in strict obedience to an order of a hierarchical superior and if it was not manifestly illegal.

The crime is consummated by the simple permission given by the responsible person for the operation of the nuclear installation, which includes, under the legal definition, the nuclear reactor, the plan that uses nuclear fuel for the production of nuclear material, or in which the treatment of nuclear materials is carried out,

[36] Article V of this Agreement provides:
1. Each Contracting Party shall take the necessary measures to guarantee physical protection of material and equipment of nuclear installations located within its territory, as well as in the case of transporting the same between the territories of the Contracting Parties and to third countries.
2. These measures shall be such that, insofar as possible, they avoid damages, accidents, theft, sabotage, robbery, evasion, harm, exchange and other risks.

including installations for the reprocessing of irradiated nuclear fuel and the places of storage of nuclear materials, except those occasionally used during its transportation.

(3) *Irregular acquisition or carriage of nuclear material*

Art. 22 — Possess, acquire, transfer, transport, store or carry nuclear material without the necessary authorization:

Penalty — reclusion, from two to six years.

The improper actions mentioned here may be committed by any person, since the principal purpose of criminalization is to avoid the diversion of nuclear material to use different from which it was designed.

(4) *Violation of secret information*

Art. 23 — Illegally transmit secret information concerning nuclear energy:

Penalty — reclusion, from four to eight years.

The purpose of this statute is to protect the secrecy of the information related to nuclear energy. This is perfectly understandable as it involves problems of security or advanced technology, which could have been obtained by any person, legally or illegally.

(5) *Illegal mining*

Art. 24 — Extract, process or trade illegally in nuclear minerals.

Penalty — reclusion, from two to six years.

This provision punishes the illegal extraction, processing and trade in nuclear minerals, which is the exclusive province of the Government. These activities require authorization by the Government in order to be legal. Their objective is to protect substances from which certain nuclear fuels are produced, existing in nature in the form of minerals.

(6) *Improper import or export of nuclear material*

Art. 25 — Export or import, without the necessary license, of nuclear material, nuclear minerals and their concentrates, minerals of interest to nuclear energy and minerals and concentrates that contain nuclear elements:

Penalty — reclusion, from two to eight years.

This provision seeks to prevent the irregular entrance or exit of nuclear material or minerals of interest in the production of nuclear energy.

(7) *Failure to observe safety rules related to nuclear activities*

Art. 26 — Fail to observe security or protection rules relating to a nuclear installation or to the use, transportation, possession and storage of nuclear material, placing the life, physical integrity or property of another in danger:

Penalty — reclusion, from two to eight years.

This statute criminalizes any failure to act that could occasion terrible consequences for the life or bodily integrity of another person or of society in general, besides severe damage to the property of private citizens and the Government. The conduct criminalized could also produce an environmental disaster, with irreversible damage to natural elements. For this reason, the

legislature should have made criminal any negligent violation of safety rules, with a corresponding lesser penalty. The prohibitive rule presupposes the existence of technical security and protection rules for nuclear activities, which are normally prepared so as to avoid accidents.

(8) *Obstruction of nuclear activities*

Art. 27 — Prevent or make difficult the operation of a nuclear installation or the transportation of nuclear material:

Penalty — reclusion, from four to ten years.

Criminalization of this conduct seems specifically directed towards the activities of groups of "pacifists", "ecologists" and others who frequently carry out actions in this sense, as a characteristic form of protest. The phrase "make difficult," however, is sufficiently broad to include several types of situations, all of which are treated equally in the area where the most severe penalties are meted out. Four to ten years of reclusion seems to us highly exaggerated, especially when compared with the preceding article, which deals with a situation of far greater gravity.

Since none of these eight criminal activities contains any express mention of negligent commission of the infraction, they can only be punished when the conduct involves malice, that is when committed consciously and wilfully (*dolo direto*), although they could better be characterized through constructive malice, which is found whenever the perpetrator assumes the risk of the offensive result, even though he did not directly desire the harm. Nevertheless, the gravity of the consequences of irregular or improper nuclear activity, and the danger which failure to obey security and protective rules can bring to the environment and to nature, including mankind, should justify a greater degree of care and more foresight by the legislator, so as to encompass also negligent, careless and unskilled behavior.

(d) The Crime of Pollution

Created by Law No. 7.804/89, which altered the wording of Article 15 of Law No. 6.938/81, this infraction was intended to fill a gap in the area of environmental offenses dangerous to the life or physical integrity of natural beings. Until passage of this law in 1989, the only possibility was to place these actions within Article 132 of the Penal Code, as "danger to the life or health of another," which, as we mentioned earlier, is only applicable to dangerous situations for human beings in a secondary form. The new criminal activity broadens the penal protection for all natural beings, with a sanction more rigorous than that of the prior law, in the following terms:

Art. 15 — The polluter who exposes human, animal or vegetable integrity to danger, or who makes more serious an already existing danger, is subject to the penalty of reclusion from one to three years and a fine of 100 to 1000 MVRs.

§ 1 — The penalty shall be doubled if:

I — it results in: (a) irreversible damage to fauna, flora and to the environment; (b) serious physical harm;

II — the pollution arises from an industrial or transportation activity;

III — the crime is committed at night or on a Sunday or holiday.

§ 2 — The same crime is deemed committed by the competent authority who fails to execute the measures tending to prevent the practice of the above-described actions.

Notwithstanding the good intentions of the legislator, the provision in question is poorly drafted and presents some criticizable points. It deals with a crime of endangerment, against the physical integrity of living creatures. This can be transformed into a crime of damage under the provisions of § 1, which calls for increased penalties if the occurrence of damage can be proven. But it makes no sense to place at the same level those situations where there is still only a danger (subsections II and III), which should have been called aggravating circumstances.

The person affected is the *polluter*, defined in Article 3 of Law No. 6.938/81 as "an individual or public or private legal entity, directly or indirectly responsible for an activity that causes environmental deterioration." By extension, the competent authority who fails to carry out the measures to prevent it also commits the crime. In spite of the statutory language, only an individual can be prosecuted for commission of a crime because of the existing principle *societas delinquere non potest*.

"Deterioration of environmental quality" is, under the law, "the adverse alteration of the characteristics of the environment." The "environment," in turn, is the "whole of conditions, laws, influences and interactions of a physical, chemical and biological nature, which permit, shelter and govern life in all its forms." Article 3 also defines "pollution" as "the deterioration of environmental quality resulting from activities that directly or indirectly: (a) prejudice health, safety and welfare of the population; (b) create conditions adverse to social and economic activities; (c) unfavorably affect the biota; (d) affect the aesthetic or sanitary conditions of the environment; (e) discharge matter or energy not in accordance with established environmental standards." The crime is basically one of concrete danger and does not require conscious knowledge of the illegality by the person who commits it. Because there is no express provision for its negligent commission, such negligence will go unpunished, which is lamentable, especially in view of the existence of a legal provision for irreversible ecological damage and the seriousness of the damage eventually caused. This can often be seen in cases of the emission of oil or petroleum spills in water.

(e) Crimes of Environmental Deterioration by Pesticides

Law No. 7.802/89, which deals with various activities connected with the use of pesticides,[37] created new types of criminal activities. It also requires registration

[37] For the purposes of the law, "pesticides and similar products" are defined as:
(a) products and agents of physical, chemical and biological processes, designed for use in the productive sector, in warehousing and processing of agricultural products, in pasture land, in forest protection, whether native or planted by man, and protection of other ecosystems and also urban, water and industrial environments, whose purpose is the alteration of the composition of flora and fauna, so as to preserve them from the harmful action of living creatures considered noxious.
(b) substances and products used as defoliants, desiccants, stimulators and inhibitors of growth.
Components or active ingredients are defined as "technical products, their raw material, inert ingredients and additives used in the manufacture of pesticides and similar products."

of pesticides with a federal agency, in accordance with the guidelines of the sectors of health, environment and agriculture.

Conduct classified as criminal is:

"Art. 15 — Anyone who produces, markets, transports, applies or provides services in the application of pesticides, their components and similar products, in breach of the requirements established in laws and regulations, shall be subject to the penalty of reclusion from two to four years, besides a fine of 100 to 1.000 MVRs. In case of negligence only, he will be punished by reclusion from one to three years, besides a fine of 50 to 500 MVRs."

"Art. 16 — The employer, qualified professional or provider of the service, who fails to take measures necessary to protect health and the environment, shall be subject to the penalty of reclusion from two to four years, besides a fine of 100 to 1.000 MVRs. In case of negligence only, he will be punished by reclusion from one to three years, besides a fine of 50 to 500 MVRs."

Commission of the infraction through negligence was correctly included, for in practice negligent violations constitute the majority of cases, although the penalty of reclusion, rather than the more usual detention, was imposed as well as a cumulative fine, demonstrating the rigor intended to prevent these offenses.

This rigor is also evidenced in the imposition of administrative, civil and criminal liability for the damages caused to the health of persons and to the environment by the acts infringing the provisions of the Law.[38]

Evidently criminal punishment depends upon the existence of fault, and the causal link between the action and the damage produced, as well as the other elements that govern the proof of liability in this branch of Law. In any event, the Law also provides various administrative sanctions, which may be applied separately or in conjunction with the appropriate civil and criminal remedies, as Article 17 stipulates. In addition, the Statute provides for preliminary relief measures of the embargo of establishments and the seizure of contaminated products or foods.

IV. FUTURE OUTLOOK, PROJECTS AND SUGGESTIONS

The right to a healthful environment is today inscribed among the unquestionable social rights of Brazil, consolidating a situation in which protection

[38] Article 14 improves criminal liability on:
(a) for a professional practitioner, when the prescription proves erroneous, careless, or improper;
(b) for a user or provider of services, when not in accordance with the prescribed amount;
(c) for a tradesman, when he makes a sale without the corresponding prescription or not in accordance therewith;
(d) for a person seeking registration, when he omits information or supplies incorrect information, whether wilfully or negligently;
(e) for a producer who produces merchandise not in accordance with the specifications appearing in the product registration, on the label, the package insert and the advertising material;
(f) for an employer, when he does not supply and does not maintain adequate equipment for the protection of the health of his workers or the equipment in production, distribution and application of the products.

of the quality of life becomes necessary and the protection of nature indispensable. Liability for ecological offenses can range through progressive stages of enforcement from mere disobedience of administrative regulations up to characterization as a crime, so that this protection can adapt to an ever-increasing number of environmental rights and interests, necessary to or useful for man in his relations with his fellow creatures or with nature in general. A joint effort has been made to confront problems in various areas at the same time. In the legal area, it is shown by the broadening of criminal enforcement, allied with greater speed in procedural matters and the intensification of the efforts of the Public Ministry as a defender of the environment, with the possibility of the public civil action, as well as countless other administrative measures, requirements, prohibitions and sanctions issued in recent years.

In Criminal Law, there is still much to do, to correct and to perfect, both in general and specific legislation. No lack of suggestions and projects exists in this area, due to recent constitutional norms and also organized national and international movements that are making public opinion more sensitive to ecological problems. Criminal environmental protection was granted a significant space in the Draft Bill of a Penal Code (Special Part), under consideration in the National Congress. After its submission by the Ministry of Justice in 1984, it was revised and corrected, as a result of the criticisms and proposals received from specialists, and was re-submitted in 1987. It now awaits new debate and final approval. In the Draft, all of Title XIII is dedicated to *Crimes against the Environment*, comprising a first chapter on *Environmental Deterioration* and a second chapter on *Forms of Favoring Crimes Against the Environment*.

Chapter I, in 3 different sections, seeks to regulate the different aspects of criminal environmental deterioration:

(1) pollution of internal waters, surface or subterranean waters;

(2) pollution of estuaries, swampland, and coastal waters of the territorial sea;

(3) pollution of the air;

(4) pollution of the soil, so as to prejudice its use of occupation;

(5) undue pollution of the subsoil, so as to prejudice its use;

(6) assaults on plant life;

(7) failure to replant when legally required;

(8) prevention of the natural regeneration of forests or other vegetation;

(9) assaults against native animal life, nests, lairs or natural breeding grounds;

(10) sinking a ship or discharging wastes on mollusk or coral beds demarcated by the authorities;

(11) predatory fishing;

(12) assaults on swamplands;

(13) spreading of infectious or contagious disease that can cause damage to flora or fauna;

(14) undue alteration of the natural landscape, damaging the harmony of its elements.

In Chapter II, failure to take measures necessary to prevent a crime, and the failure to carry out official functions in that same connection, are made criminal conduct.

Certain definitions of types of crimes were perfected and joined together instead of being scattered throughout the statute books. New provisions were added, with their respective aggravating and attenuating factors. Technical environmental cases were improved by the inclusion of various forms of negligent ecological offenses, which had shown themselves necessary. But the sanctions, in general, are less strict, perhaps because the majority of crimes are only crimes of endangerment, and the sanctions then occupy the same scale of values that orients all the penalties of the Code. On the other hand, some suggestions have been submitted as contributions to the solutions of problems that arise and demand the attention of the authorities and the legal framework.

One of the most interesting of these is that put forward by Paulo Affonso Leme Machado, in relation to *solid waste pollution*, which he maintains has been neglected by the legislators and administrators until now. The volume of solid waste pollution is steadily increasing with the progressive increase in consumption, while at the same time its harmfulness (toxicity) is increasing because of the greater use of chemical products, pesticides, etc. In reminding us of its major social connotations, notably because of the habit of throwing waste or trash on highways, gardens and patios of apartment buildings, he suggests including in the Penal Code the crime of *solid waste pollution*.[39] Suggestions such as these, even though appropriate, do not obviate the need to adopt preventive measures, especially the education of the general population, who is the greatest ally in combating criminal behavior, and more specifically, of ecological crimes that affect the *public goods for the people's use*.

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[39] Machado would define the crime as: "Discharge or deposit solid waste on public or private property, without observing legal or regulatory prescriptions." The penalty he suggests is reclusion for up to three years and a fine. He would include the negligent commission of the crime, for which the penalty would be detention of two months to one year. *Supra* note 22, at 311.