

VIII CONGRESO DE GERENCIA DE RIESGOS Y SEGUROS INDUSTRIALES

-CEGERS 96-

MADRID, 4-5 DE MARZO DE 1996



**LAS RESPONSABILIDADES LEGALES
Y EL MEDIO AMBIENTE**

**Por: D. Fernando Huidobro Escalante
Abogado. Socio de GOMEZ ACEBO Y POMBO**

SPAIN

Fernando Huidobro and María Entrecañales
Gomez-Acebo & Pombo
Madrid, Spain

INTRODUCTION

A first approach to the concept of environment is through a broad notion that extends to the ecological problem in general and, specifically, to the main issue of the use of resources available in the biosphere. This overall perspective is often adopted in certain international pronouncements and in some domestic legislation.

However, in terms of function, a more precise definition of the legal concept of the environment is required.

Considering the environment in this manner, environmental law influences the individual and social behavior which alter its balance. This can be structured internally on the basis of categories of behavior which can influence the elements to be protected, depending on their greater or lesser influence for the environment, bearing in mind the characteristics of the environment, or merely considering the general administrative system of each country.

THE SINGLE EUROPEAN ACT

The Single European Act completes the Treaties of the European Communities and was signed in Luxembourg on 17 February 1986, coinciding approximately with the time Spain became a member of the European Community (EC).

The Act was ratified by Spain on 9 December 1986. This Treaty refers to the environment in Article 100(a) and in Chapter VII.

Article 100(a), which is included in Chapter VII of the Act, provides that the purpose of EC action in relation to the environment is:

- (1) To preserve, improve and protect the quality of the environment;

sanctions, as the case may be, will be determined, along with the obligation to repair the damage caused.

The constitution proclaims the right for all to enjoy the environment, but the obligation is also imposed to preserve it.

However, it must be noted that such suitable environment for the development of the person can be of a varied nature and broad scope.

Under the Spanish Constitution, the environment consists, therefore, of the natural resources that can be used by persons, the preservation and restoration of which impacts on the quality of life and, which itself can be protected. This last definition derives from Article 45, when considering that the rational use of natural resources, besides being aimed at quality of life, should also be directed towards protection and restoration of the environment at regional level.

Article 347 bis of the Penal Code determines criminal liability for ecological violations. The Code provides:

"347 bis. He who violates Laws or Regulations which protect the environment, causes or produces, directly or indirectly, emissions or dumping of any kind, to the atmosphere, the soil or land or sea waters, who seriously endangers the health of persons, or who could seriously endanger conditions of animal life, forests, natural spaces or crops, will be punished with imprisonment and a fine of between Pts. 175,000 to Pts. 5-million.

"The maximum penalty will be imposed if the industry operates clandestinely, without having obtained the necessary administrative authorization or approval for its installations, or if express orders from the administrative authority regarding the correction or suspension of the contaminating activity have been disobeyed, or if untrue information has been provided on the environmental aspects thereof, or if inspection by Administration has been hampered.

"The maximum penalty will also be imposed if the above-stated acts give rise to a risk of irreversible or catastrophic deterioration.

"In all the events contemplated in this Article, temporary or permanent closure of the establishment may be agreed upon, and the Court may propose to the Govern-

ment that the activity be intervened in order to safeguard the rights of workers".

The uncertainty surrounding ecological crime is well known, as this crime is very vaguely described in the Penal Code and is referred to other legal principles.

The abundance of ecological threats and the few judgments which condemn it are a sign that the legal system is inadequate in providing protection to the environment.

There are also other threats to human health which are not contemplated in Article 347 bis. This is the trading or killing of protected species or aggression towards protected natural spaces. Neither is the irrational use of natural resources cited as a criminal behavior.

Because of the foregoing, a White Paper has been prepared by the Public Prosecutors, the most significant innovations of which are:

- (1) The Spanish Constitution is clear in its endeavor to protect natural surroundings through criminal channels in Article 45.3. However, the only criminal principle arising subsequent to the Spanish Constitution and conceived by the legislator in order to protect the environment, i.e., Article 347 bis, is insufficient, since it only contemplates contamination or pollution;
- (2) Environmental protection through the sanction powers of the Government has not shown better results than those obtained under the restricted criminal ruling;
- (3) It appears that, at present, a broader and more efficient penal protection of the environment is warranted wherein the death of a species in danger of extinction is fully contemplated;
- (4) At the same time, internal trade is sanctioned as an offense under Article 43.4 of the Law on Hunting and, therefore, should the White Paper become legislation, it would be derogated and such behavior would be considered as a crime;
- (5) International trading of protected species and specimens, practised outside the law, should be considered as a crime of smuggling;
- (6) To achieve criminal protection of the natural values inherent in a protected space, and not restricting surveillance solely to this space, protection should extend to the indispensable area of influence which usually receives lesser attention and which surrounds the primary protected zone;

- (7) The White Paper contemplates the penalty of disqualification from the exercise of industrial activities; furthermore, since this is considered a specific crime, if determined injuries are caused, a more serious crime would arise;
- (8) Regarding carelessness, penalties are determined for cases of non-observance by civil servants, authorities, or those empowered with the enactment of criminal environmental rulings, but to these are added typical cases of offense through omission when the criminal facts are not made known to the judge or prosecutor, or when the results of inspections have been concealed.

Particular emphasis is also given to local jurisdictions in order to consider serious offenses against urban or rural planning.

INTERNATIONAL TREATIES

Atmospheric Contamination

The following steps have been undertaken in Spain in conjunction with international agreements pertaining to atmospheric contamination:

- (1) Ratification, on 7 June 1982, of the Treaty on long-distance, cross-frontier contamination, signed in Geneva, Switzerland, on 13 November 1979;
- (2) Amendments to the Montreal Protocol regarding substances which erode the ozone layer, signed in Montreal, Canada, on 16 September 1987, published in the Official State Gazette, "BOE", on 17 March 1989, 15 November 1989, and 28 February 1990;
- (3) Ratification of the Protocol to the Treaty on long-distance, cross-frontier atmospheric contamination, 1979, regarding cross-frontier emissions of nitrogen oxide or its by-products, signed in Sophia, Bulgaria, on 31 October 1988 and opened to signature on 1 November 1988;
- (4) Regulation Number 24 on uniform prescriptions regarding homologation of diesel engine vehicles in respect of contaminating emissions from the engine, annexed to the Geneva Treaty of 20 March 1958, on the adoption of uniform conditions for the homologation of motor vehicle equipment and parts; and

- (5) Regulation Number 83 on uniform standards for the homologation of vehicles in respect of the emission of gaseous contaminants from the engine and fuel conditions of the engine, annexed to the Geneva Treaty of 20 March 1958, regarding the fulfillment of uniform homologation standards and reciprocal recognition of the homologation of motor vehicle equipment and parts.

Sea Water Contamination

The following steps have been undertaken in Spain in conjunction with international agreements pertaining to sea water contamination:

- (1) Adhesion, on 5 October 1981, to the Protocol of the International Treaty on liability for damages caused by contamination of the sea by hydrocarbons (1969), signed in London, England, on 19 November 1976;
- (2) Adhesion, on 22 September 1981, to the International Treaty on the constitution of an international indemnity fund for damages caused by hydrocarbons, signed in Brussels, Belgium, on 18 December 1971;
- (3) Ratification, on 21 May 1984, of the Protocol of 17 May 1980 on protection of the Mediterranean Sea against land-originated contamination, signed in Athens, Greece;
- (4) Ratification, on 22 June 1984, of the Protocol of 1978, regarding the International Treaty on the prevention of contamination by vessels, 1973, signed in London, England, on 17 February 1978;
- (5) Ratification of the amendment Protocol of the Treaty on prevention of land-originated sea contamination, signed in Paris, France, on 26 March 1986; and
- (6) Amendment to Appendix III of the Treaty on prevention of sea contamination by the dumping of refuse and other materials, signed in London, England, Mexico City, Mexico, Moscow, Russia, and Washington, D.C., on 29 December 1972, and approved by the twelfth consultancy meeting of the contracting parties on 3 November 1989, through Resolution LDC 37(12).

Flora and Fauna

The following steps have been undertaken in Spain in conjunction with international agreements pertaining to the protection of flora and fauna:

- (1) Ratification, on 28 August 1986, of the Washington Treaty on Species of Wild Flora and Fauna threatened with extinction, drafted in Washington, DC, in 1973;
- (2) Ratification, on 4 May 1983, of the Treaty on the Preservation of Migratory Species pertaining to wild fauna, as drafted in Bonn, Germany, on 23 July 1979;
- (3) Ratification, on 13 May 1986, of the Berne Treaty, as drafted in Berne, Switzerland in 1979, on the preservation of wildlife and the natural environment in Europe;
- (4) Adhesion, on 9 March 1984, to the Treaty of 20 May 1980, on preservation of authentic live marine resources, as drafted in Canberra, Australia.

International Transport of Hazardous Materials

The following steps have been undertaken in Spain in conjunction with international agreements pertaining to the transport of hazardous materials:

- (1) Adhesion to the European Agreement of 30 September 1957, on the international transport of hazardous materials by road, signed in Geneva, Switzerland; an amended text came into force on 1 May 1958;
- (2) Ratification, on 8 September 1978, of the International Marine Code on Hazardous Materials, pursuant to Chapter VII of the International Treaty on the safety of human life at sea, 1974, signed in London, England, on 1 November 1974;
- (3) Conclusion of the Private Agreement of 7 June 1990, on the transport of phosphor sesquisulphur in type 1A2 metal drums, signed by virtue of Article 5, 2, of RU/CIM with Italian Railways (FS), French Railways (SNCF), and British Rail (BR); in relation to the Regulation of 8 August 1986, on the international transport of hazardous materials by rail; and
- (4) Adoption of the Resolution of 18 October 1991, of the Directorate General of Land Transport, authorizing the provisional transport of explosive materials and objects pursuant to

the provisions for such purpose in the European Agreement in force on international transport of hazardous materials by road.

LEGISLATION REGARDING WATER

Continental Waters

Water is extensively regulated in the Law of 2 August 1985; as an innovation, the Law introduced the inclusion of underground waters as public property, thus eliminating the right of appropriation granted under the Law of 1879. Another innovation in the Law is the consideration of water as a unit resource, making no distinction between surface and underground water.

Water Law of 2 August 1985

The Law establishes river basin administrations which have the following functions:

- (1) The drawing up of hydrological plans;
- (2) The study, planning, execution, conservation, operation, and improvement of works included in their respective plans;
- (3) The definition of quality objectives and programs in line with hydrological planning; and
- (4) The control of the quality of water.

With regard to dumping into continental waters, this requires administrative authorization, which may be revoked for breach of conditions. Dumping management companies may also be constituted to transport and dispose of waters from third parties.

The river basin administration also establishes a fee applicable to any dumping activity.

Finally, sanctions are contemplated for "dumping which may deteriorate the quality of the water or drainage conditions of the receiving water, carried out without the necessary authorization". These fines, in very serious offenses, can amount to Pts. 50-million. Furthermore, the person responsible may be bound to repair the damages to public property.

Regulation on Public Property (RD Number 849/1986)

Among other things, this legislation:

- (1) Requires dumping authorization (determining the application procedure and granting of the authorization), and stipulates that, in order for authorization to be granted, the application must be accompanied by the project for the purification installations which will ensure that the degree of purification is suited to the quality group laid down for the receiving water;
- (2) Provides for collaboration of various entities with the river basin administrations;
- (3) Establishes a list of contaminating substances, including "black" and "grey" contaminating substances, pursuant to EC Directive Number 76/464;
- (4) Specifies the formalities for administrative authorization for the establishment, modification, or relocation of installations or industries which could originate dumping, as well as the conditions and formalities for the suspension and renewal of authorizations;
- (5) Determines the conditions for authorization, operation, and renewal of authorization for dumping management entities. The river basin administration will temporarily suspend dumping authorizations or modify the conditions thereof when the circumstances which led to its granting have been altered or aggravated and, had such circumstance existed previously, authorization would have been refused;
- (6) Defines conditions for re-usage of purified waters, depending on the purifying processes, their quality, and the usage contemplated;
- (7) Determines the competence of the Government with regard to the granting of State subsidies;
- (8) Determines the regime for application of the dumping charge, along with a transitory value per contamination unit equivalent to a dumping by 1,000 persons per year, which amounts to Pts. 500,000; determination of the final amount of this unit is within the competence of the river basin administrations, based on investment forecasts for purification plans provided by the competent public authorities; and
- (9) Provides fines for violations, ranging from Pts. 10-million to Pts. 50-million.

Apart from the fines imposed, violators may be bound to repair the damages caused to public hydro-property and to restore things to their previous condition.

The authorities also may impose coercive fines, which may not exceed ten percent of the maximum sanction determined for the offense committed.

The sanction procedure will be initiated by the river basin administration, either *de officio* or as a consequence of a higher order or pronouncement.

Regulation of Public Water Administration and Hydrological Planning (RD Number 927/1988)

The Regulation defines the competence of the State and Regional governments with regard to the public administration of water. A National Council for Water has been created to review national and river basin hydrological plans.

Local agencies grant authorizations and permits with regard to public hydro property and control the quality of the water, and they may carry out projects and execute and operate purifying works, as well as set quality objectives. They are authorized to collect dumping charges and indemnities for damages to public hydro property.

The agencies are responsible for the River Basin Hydrological Plan, which must include basic characteristics for the quality of the water, and for ruling on the dumping of residual waters.

Sea Water

Spain has a very long coastline which is affected by a significant increase in population and consequent intensification of tourism, agriculture, industry, and other activities. For this reason, there is a great interest in the conservation of natural spaces and the protection of public right to sea and land.

It is intended to prevent the interruption of wind-borne conveyance of arids, uncontrolled dumping and, in general, the negative influence of building and the related use and activity which this causes to the natural environment, from causing irreparable damage or damage which is very difficult and expensive to repair.

The Law of 28 July 1988 on Coasts and Regulation Number 1474/1989

The Law and the Regulation define land and sea of public dominion and forbid the dumping of non-purified residual waters. Dumping requires authorization and must be purified in such a way as not to cause alteration of the receiving water. Authorized contaminating dumping is subject to a charge which depends on the contaminating content. This charge is received by the administrative body which granted the dumping authorization.

Offenses through unauthorized dumping may be sanctioned with fines of up to Pts. 50-million.

The Law also determines the competence of the State and regional governments and town councils with regard to the public dominion of land and sea.

Regional Legislation Regarding Water

The following regional legislation regulates water:

Asturias - supply and conditioning - RD 6 March 1985 - 15 April 1985.

Balearic Islands - dumping into the sea - RD 20 February 1985 - 356/85 - BOE, 22 March 1985.

Galicia - dumping into the sea - RD 17 April 1985 - 659/85 - BOE, 14 May 1985; supply, conditioning, channelling, and defense of river banks - RD 11 September 1985 - 1870/85 - BOE, 15 October 1985.

Madrid - complementary rules for the evaluation of contamination and the application of tariffs for the purification of residues - BOE, 16 June 1986.

Navarre - conditioning of residual water - Regional Law - 29 December 1988 - 10/88 - BOE, 7 February 1988.

Valencia Region - supply, conditioning, channelling, and defense of river banks - RD 11 September 1985 - 1871/85 - BOE, 15 October 1985.

NATURAL SPACES, WILD FLORA AND FAUNA

Natural Spaces

In the legal regulation on spaces, there are two clearly differentiated periods: prior to the Law Number 4/89, during which the Law of 1975 was in force, and subsequent to enactment of the Law Number 4/89.

The Law Number 4/1989 derogates and replaces the Law Number 15/1973. In the Recital of Motives of the new Law, its need is recognized due to:

"The strong wish to extend the legal regime which protects natural resources beyond mere protected natural spaces and the necessary articulation of the conservation policy for conservation of Nature with the present distribution of competence between the State and Regional Governments".

The Law is thus intended to consider nature both as a media for the development of essential ecological processes and basic systems of life as well as the set of resources necessary for this purpose.

The purpose of the Law is to comply with the requirements of Article 45 of the Spanish Constitution. The Law incorporates rules on protection, conservation, restoration and improvement of natural resources and, in particular, those regarding natural spaces and wild flora and fauna, the fundamental principles being as follows:

- (1) The maintenance of essential ecological processes and basic systems of life;
- (2) The conservation of genetic diversity;
- (3) The controlled use of resources, in order to guarantee sustained utilization of species and ecosystems, their restoration, and improvement; and
- (4) The conservation of the variety, singularity, and beauty of natural systems and landscape.

In Article 10 of the Law, a general description is given of what are considered protected natural spaces, defining these as spaces within national territory, including continental waters and marine spaces subject to Spanish jurisdiction, and also including the exclusively economic area and the continental platform which contains natural elements and systems of special interest or outstanding natural value.

Article 12 determines the following categories of natural spaces:

- (1) Parks;
- (2) Natural reserves;
- (3) Natural monuments; and
- (4) Protected landscapes.

Unlike its predecessor, the Law Number 4/1989 dedicates a full chapter to national parks, providing for establishment of a network of parks.

Chapter III of the Law reflects Article 148 and 149 of the Spanish Constitution. Article 149.23 reserves for the State exclusive competence to dictate basic legislation on environmental protection. Article 148.1.9 recognizes the measures that can be taken by Regional Governments.

In this respect, Article 21 attributes to the regional governments, in whose territory the protected spaces are located, the competence for declaration and management of such protected spaces when these are located in the territory of one or more regions. Furthermore, the regional governments, with exclusive competence on the matter, can dictate additional rulings.

Title II of the Law provides and defines plans and guidelines relating to natural resources. The objectives of these plans are:

- (1) To define and indicate the state of conservation;
- (2) To determine the limits which may be established in view of the state of conservation;
- (3) To indicate the necessary regimes for protection;
- (4) To encourage the application of measures for conservation, restoration, and improvement of natural resources where necessary; and
- (5) To draft criteria for guidance of sectoral policies and the organization of economic and social, public, and private activities.

Fauna

Through Law Number 4/89, Spain has adopted a new perspective towards the protection of fauna, more in line with the criteria which are appearing at international levels.

The Law obliges public authorities to adopt measures for the protection of species which live in a wild state, without exceptions

and placing special interest on native species. It is expressly forbidden to kill, harass, capture, or bother such species.

Flora

Until competence was transferred to regional governments, there were only two legal principles related to the protection of trees.

The first of these rules is contained in Article 228 of the Regulation on Open Country (D.485/62). This Article states that the owners of estates on which certain species are present must notify this presence to the authority by sworn declaration. It is presumed that the purpose of making the authorities aware of certain species of trees and their location is to take this fact into consideration for the control of forestry operations.

In 1982, a Decree was passed to protect, directly and in a restricted manner, the Corsican pine, the yew, and holly. These trees cannot be felled or pruned commercially or industrially.

Given the limitations of this protection (which does not forbid commercialization once felled), since 1983, the regional governments have dictated numerous legal rulings on the matter.

REGIONAL LEGISLATION

The following regional legislation relates to the protection of natural spaces and flora and fauna:

Asturias - Law Number 5/1991, 5 April 1991, on the protection of natural spaces.

Balearic Islands - Law Number 4/1990, 31 May 1990, on declaration of a natural area of special interest in the Marina de Lluchmayor; Law Number 1/1991, 30 January 1991, on natural species and the urban regime of specially protected areas of the Balearic Islands.

Canary Islands - Law Number 8/1991, 30 April 1991, on protection of animals.

Castille and Leon - Law Number 8/1991, 10 May 1991, on natural spaces in the Castille and Leon Region.

Catalonia - Law Number 19/1990, 10 December 1990, on conservation of the flora and fauna of the seabed of the Medes Islands.

Extremadura - Law Number 8/1990, 21 December 1990, on hunting in Extremadura.

Madrid - Law Number 6/1990, 10 May 1990, declaration of a natural park at La Cumbre, Circo, and Lagunas de Pealara; Law Number 7/1990, 28 June 1990, on the protection of dams and marshes within the Madrid Region; Law Number 2/1991, 14 February 1991, on the protection and regulation of wild flora and fauna in the Madrid Region.

Navarre - Law Number 13/1990, 31 December 1990, on the protection and development of forests in Navarre.

REGULATION OF ATMOSPHERIC CONTAMINATION

It is necessary to consider that rules on emissions are indices that must not be considered as absolute values but, depending on the conditions of each particular case, can be adjusted in order to become integrated into a system which benefits the community.

The rules enacted must arise from a balancing of hygiene and health requirements, economic demands, competitiveness in the international market, and technology available to purify emissions of atmosphere-contaminating substances.

The Law of 22 December 1972

Purpose of the Law

The Law of 22 December 1972 on Protection of the Atmosphere is intended to avoid, supervise, and correct situations of atmospheric contamination, regardless of its causes.

Atmospheric contamination is understood to be the presence in the air of matter or forms of energy which imply risk, damage, or serious discomfort for persons and property of any nature.

Emission and Inmission Standards

The Government and local corporations will adopt the necessary measures to maintain the quality and purity of the air and especially to conserve and create forests and green spaces. These measures are mandatory for all public and private activities.

It is intended that control of levels of contamination to the atmosphere be as strict as possible, through the determination of limits of emission of contaminants to the atmosphere provided in the Regulation which elaborates the Law in Appendix IV, and these limits may not be exceeded.

The Law distinguishes between levels of emission and levels of inmission.

"Level of emission" is the amount of each contaminant systematically emitted to the atmosphere during a determined period. These levels of emission are to be found in the Regulation which elaborates the Law, and they are determined by the Government.

"Level of inmission" is the maximum tolerable limits of presence in the atmosphere of each contaminant, either in isolation or in association with others. These limits are also determined by the Government.

The owners of sources which emit contaminants to the atmosphere, regardless of their nature, and especially industrial plants, heat generators, and motor vehicles, are bound to respect the levels of emission determined by the Government, and the Government may determine stricter limits when it is considered that persons or property located in the area of influence of the source of emission are threatened or when general levels of emission are exceeded.

Should there be contamination above authorized levels, the area will be declared an atmospherically contaminated area and will be subject to a special regime of action which will be taken to achieve progressive reduction of levels of inmission until acceptable levels are reached.

Should levels of inmission determined by the Government be exceeded due to meteorological or accidental causes, an emergency situation will be declared in the area affected, and the Government will determine the duration and characteristics of the regime to be applied.

The Government has established a national network of fixed and mobile stations for the surveillance and forecast of atmospheric contamination, and the network is administered by the Ministry of Conservation.

Offenses

Violation of the provisions of the Law and related Regulations will be sanctioned without prejudice to the requirement, as the case may be, of the relevant civil and criminal liabilities.

In cases where there is an emergency declaration of an atmospherically contaminated area, the fines may be imposed up to a double or triple amount.

The authorities also may seal heat generators and vehicles and suspend or close other seriously contaminating activities which are not due to a fortuitous event or force majeure.

Decree Number 833/1975

Decree Number 833/1975, 6 February 1975, determines, in Appendix I, levels of inmission, criteria for consideration, and indices of contamination in the inmissions in admissible situations, as well as for the declaration of atmospherically contaminated areas and emergency situations.

It also determines levels for the emission of contaminants to the atmosphere from the main potentially contaminating industrial activities. Determination of levels of emission must contemplate diverse situations, such as the different treatment to be given to new industries and those already existing, taking into consideration technological developments.

The Decree also deals with the installation, extension, modification, location, and operation of potentially contaminating industrial activities. Thus, Article 55 of the Decree provides that there can be no installation, extension, or modification of any activity classified as potentially contaminating when, in the opinion of the competent Ministry, due to such activity, the increase in contamination will exceed determined levels of inmission.

The Decree includes aspects of application for administrative authorization, control of commissioning, and supervision of operation.

Finally, the Decree establishes sanctions for violations. To determine the amount of the sanction applicable, account will be taken of the overall assessment of the following circumstances: nature of the offense, economic capacity of the company, seriousness of the damage caused from a health, social, or material point of view, and re-occurrence. As to this latter point, in serious offenses, the Min-

istry may opt between imposition of a fine of Pts. 500,000 or temporary closure of the industrial activity until the deficiencies have been corrected.

Other Legal Provisions

Several other provisions have impact on the regulation of atmospheric contamination.

Royal Decree Number 1613/1985, 1 August 1985, partially modifies Decree Number 833/1975, 6 February 1975 in terms of the levels of quality of the atmosphere with regard to sulphur dioxide and particles in suspension and establishes procedures to make this effective.

Royal Decree Number 717/1987, 27 May 1987 partially modifies Decree Number 833/1975, 6 February 1975, providing new rules on quality of air with regard to contamination by nitrogen dioxide and lead.

Both Decrees signify an adaptation of Spanish legislation on this matter to EC Directives.

In the final sections of the two Decrees, it is provided that Decree Number 833/1975, developing Law Number 38/1972, 22 December 1972, on the protection of the atmosphere, will continue in force insofar as it does not conflict with the provisions of the Royal Decree Numbers.

Finally, the Order of 18 October 1976, aims at the prevention and correction of atmospheric contamination of industrial origin.

EVALUATION OF ENVIRONMENTAL IMPACT

The introduction to Article 130R, Single European Act, Point 2, provides:

"Community action with regard to the environment will be based on principles of preventive and corrective action, preferable at origin, of attacks on the environment".

Point 4 of this Article provides that, "without prejudice to determined measures of a Community nature, Member States will assume the funding and execution of other measures", having provided that the objectives of the EC with regard to environment

(conservation, protection, and improvement of the quality of the environment, contribution towards the protection of personal health, and guarantee of a careful and rational use of natural resources) must be achieved by the Member States, and only when EC action permits this achievement in better conditions, will EC action be taken.

The EC Council regulates, in EC Directive Number 85/337, the form and scope with which environmental evaluation studies are to be made of certain public and private works. The rule provides that the environmental study must be made on the basis of exhaustive information on the effects the projects could have on the environment, this information not only being provided by the owner of the project but being completed by the authorities and by the public liable to be affected by the project.

The Spanish Constitution, in Article 45, imposes upon public authorities the defense of the environment and, in Article 9, also requires that they provide and enable the participation of all citizens in economic, cultural, and social life; this double constitutional mandate implies -- as stated by the EC -- that, with regard to the environment, prevention is the best defense and that prevention systems must be prepared on the basis of extensive participation.

The incorporation into Spanish legislation of EC Directive Number 85/337, 27 June 1985, took place through Royal Legislative Decree Number 1302/1986, 28 June 1986, on the evaluation of environmental impact, which subjects the projects stated therein to evaluation.

The Regulation, approved by Royal Decree Number 1131/1988, consists of four chapters.

The first chapter contains general provisions which define the object and scope of application. Public and private projects consisting of the performance of works, installations, or any other activity included in the Appendix to such legislative provision, are subject to evaluation.

It is important to emphasize that neither projects related to national defense nor projects specifically approved by a State Law are subject to such evaluation.

In exceptional cases, the Council of Ministers may agree upon the exclusion of determined projects from environmental evaluation.

The second chapter defines environmental impact evaluation as a set of technical studies and systems which permit an estimation

of the effects which execution of a determined project, work, or activity could cause on the environment.

In this regard, it also includes the information to be contained in all projects submitted to environmental evaluation, which are:

- (1) Description of the project and its components;
- (2) Examination of technically feasible alternatives and justification of the solution adopted;
- (3) Environmental audit and description of key ecological or environmental interaction;
- (4) Identification and assessment of impact, for both the solution proposed and its alternatives;
- (5) Determination of protective and corrective measures;
- (6) Environmental surveillance program; and
- (7) Documentation of synthesis.

The chapter also develops the procedure for environmental evaluation -- a process which starts with the generic definition of the project it is intended to carry out -- and ends with the declaration of environmental impact presented by the environmental organ, which will determine, solely for environmental purposes, the advisability or otherwise of executing the project and, if so, the conditions under which it is to be carried out.

In line with the information obtained from the Secretary General for the Environment, the average period between initiation of the environmental impact evaluation procedure until environmental declaration is approximately eleven months.

In the case of projects regulated by State legislation, this period is, as a minimum, four months.

The third chapter regulates the evaluation of environmental impact with cross-frontier effects, so that, as required by law, there will be an exchange of information and consultation between the countries involved, and participation in activities complementary to environmental impact evaluation will also increase.

The fourth chapter regulates surveillance, liability, and confidentiality of information. It is important to point out that, in the case of a project compulsorily subject to the environmental impact evaluation procedure but initiated without having fulfilled this requirement, its execution will be suspended at the instance of the competent environmental administrative organ, with prejudice to any liability which may arise.

An additional provision regulates harmonization of the sectoral legislation regarding impact studies and evaluations with legisla-

tion provided under the Royal Legislative Decree Number and this regulation.

Sectoral Rules on Environmental Impact Evaluation

Law Number 25/1988, 29 July 1988, on roads, in Article 9, provides that projects for motorways, dual carriageways, or diversions, as well as new roads, must include the relevant environmental impact evaluation.

Royal Decree Number 1211/1990, 28 September 1990, on the ordinance of land transport, provides in Article 227.3 that, for the construction or extension of railway lines, the environmental impact evaluation procedure must be observed with regard to the content and formalities of the project.

Law Number 4/1989, 27 May 1989, on the conservation of natural spaces and wild flora and fauna, provides in Article 4.e, that plans for the ordinance of natural resources must have, as a minimum, the following content: detail of those public or private activities, works or installations to which the evaluation regime contemplated in Royal Legislative Decree Number 1302/1986, on environmental impact evaluation, is applicable. In an additional provision, the Law extends the list of activities subject to this evaluation.

Regional Legislation

Some Regions have developed their own legislation on environmental impact, maintaining the basic lines of the Regulation on environmental impact evaluation. These are as follows:

Andalusia - Order Number of 12 July 1988 of the Council for Public Works and Transport.

Aragon - Decree Number 192/1988, 20 December 1988, of the General Deputation of Aragon, distributing competence for environmental impact evaluation among regional organs; Decree Number 188, 19 September 1989, of the General Deputation of Aragon on the procedure for environmental impact evaluation, and Decree Number 148/1990, 9 November 1990, regulating the procedure for the declaration of environmental impact.

Asturias - Law Number 1/87, 30 March 1987, on territorial coordination and ordinance, referring superficially to impact evaluations, defining them as an instrument for territorial ordinance, and distinguishing between environmental impact evaluations and structural impact evaluations; the Resolution of 21 January 1988 of the Presidential Advisory Committee on permits for the installation of small hydroelectricity plants, requiring the preparation of a study on environmental impact evaluation, and Decree Number 54/90, 17 May 1990, providing that all applications for the planting of forest species must be accompanied by a study on environmental impact.

Balearic Islands - Decree Number 4/1986, 23 January 1986, on the implementation and regulation of environmental impact evaluation studies; Law Number 5/1990, 24 May 1990, on roads, in Article 17.4, providing that "projects and blue papers for new roads, modification or extension of motorways and dual carriageways, creation of dual carriageways, and by-passes and alterations which signify changes in direction for a distance of over three kilometers or which affect a specially protected landscape, will be subject to the preparation of an environmental impact study".

Canary Islands - Law Number 11/1990, 13 July 1990, on the prevention of environmental impact, providing measures for the evaluation of environmental impact. (This regional legislation can give rise to a conflict of competence with regard to the Central Government, since it includes in its environmental impact estimation procedure the performance of coastal renovation and defense works; in such case, the authorizing organ is the Directorate General of Coasts, dependent upon the Central Government and over which the Advisory Committee for Ecology, Environment and Territorial Ordinance has no competence; furthermore, this activity is not included among those regulated by State legislation.)

Castille and Leon - Decree Number 269/1989, 16 November 1989, on environmental impact evaluation, granting competence in this matter to the Advisory Committee on Environment and Territorial Ordinance and creates the Regional Environmental Commission for Consultancy on Environmental Impact Evaluation; Orders of 30 November 1989, of the Advisory Committee for Environment, regulating the composition of technical committees for environmental impact evaluation in each Province of this Region, which will be charged with the study and presentation of proposals for the decla-

ration of environmental impact of projects affecting exclusively such Province, pursuant to Decree Number 57/1989, 13 April 1989, which creates the Commission for the Environment of Castille and Leon; Law Number 2/1990, 16 March 1990, on roads, Region, providing that "projects for motorways and roads which imply a change of direction, and new roads and all roads located in protected natural spaces must include the relevant environmental impact evaluation"; Law Number 8/1991, 10 May 1991, on natural resources, providing that plans for the ordinance of natural resources (compulsory for declared natural spaces), will contain detail or precision of the activities to which environmental impact evaluation will be applied; Law Number 14/1990, 11 November 1990, on the concentration of estates, providing that projects of this nature and others inherent in such concentration will be subject to environmental impact evaluation in cases where there could be serious hazards of negative ecological transformation.

Catalonia - Decree Number 114/1988, 7 April 1988, regulating environmental impact evaluation; the procedure is similar to that used by the Central Government, except at initiation, since this does not commence with the presentation of the summarized report and prior consulting; regarding projects, these also include fishing ports, dikes, and other measures for the defense and renovation of public land-sea patrimony, provided the execution budget per contract exceeds Pts. 50-million and, in general, all works and installations which could considerably endanger the values conserved in protected natural spaces.

Galicia - Decree Number 81/1989, 11 May 1989, on measures for the ordinance of new eucalyptus plantations, stating the need to draft a study on environmental impact for new mass plantations of more than fifty hectares; Decree Number 442/1990, 13 September 1990, on environmental impact evaluation, developing the procedure and content of studies similarly to that of the Regulation on environmental impact evaluation.

Madrid - Law Number 10/1991, on protection of the environment, providing procedures for evaluation of environmental impact, as such, and for environmental classification, the first procedure coincides with State legislation but is considerably broadened; the second relates to classified activities for which authorization will correspond to towns with more than 20,000 inhabitants or to

the Madrid Region for towns with less inhabitants or for activities which surpass the scope of a town, or are sponsored by public authorities; this legislation replaces the Regulation on Bothersome, Insalubrious, Noxious and Hazardous Activities (also known as Regulation on Classified Activities).

Navarre - Regional Decree Number 344/1990, 20 December 1990, determining the environmental aspects to be taken into account by projects for the installation of small hydroelectricity plants; Regional Law Number 98/1991, 21 March 1991, determining the environmental aspects to be taken into account by projects for the concentration of estates, similar to that contains in a study on Environmental evaluation.

Basque Country - Decree Number 283/1989, approving the general plan for roads in the Basque Country for the period 1987-1988, including a definition of the content of the study of environmental impact for roads, and Decree Number 73/1990, 8 May 1990, of the Regional Deputation of Biscay Province, referring to subjection of environmental impact evaluation of certain fishing, agricultural, and forestry projects.

Valencia - Law Number 2/1989, 3 March 1989, on environmental impact, developed by Decree Number 162/1990, 15 October 1990, approving its Regulation; the procedure is similar to that of basic legislation but with two major innovations: (a) the Organ or corporation charged with presentation of the general plans for urban ordinance or complementary and subsidiary rules on planning may subject the same to environmental impact evaluation, following a study which identifies, describes, and evaluates the environmental effects of the solutions adopted, and (b) projects subject to environmental impact evaluation are divided into Appendix (following the normal and general procedures for environmental impact evaluation) and Appendix II (following an abbreviated procedure known as "estimate of environmental impact"; Decree Number 79/1989, 9 May 1989, approving the plan for nautical-pleasure ports and installations, and Law Number 6/89, 7 July 1989, on territorial ordinance.

LEGISLATION ON RESIDUES

Urban Residues

Law Number 42/1975, 19 November 1975, on solid urban refuse and residues, has a double perspective, as stated in Article 1, that of protection of the environment and that of recuperation of resources.

A definition is provided for those residues for which collection, transport, and storage or elimination is charged to Town Councils, as provided in the Law on Local Regime and other provisions in force.

Chapter II, on the elimination of residues, determines the obligation of Town Councils to assume responsibility for solid urban residues produced within their jurisdictions, although it does oblige the producer thereof to carry out prior treatment when the residues are toxic or hazardous, or to fraction them when they are voluminous.

The Law determines the regime on ownership of the residues (Article 3.2), which is attributed to the producer thereof until he abandons them.

Article 4.2 provides that producers or owners of residues may conserve same or set up their own deposits or tips. Producers of solid industrial residues, or those from construction, may be bound to set up their own installations.

Chapter III, on the utilization of resources, is the most innovative part of the Law. Any owner of residues is entitled to utilize them following approval of a project by the Ministry of Industry.

Chapter IV, on Government functions in the matter, states the need for the State to encourage the recuperation of residues. To this end, it obliges technological investigation and development in order to implement the most suitable systems for the elimination and recuperation of residues and to establish and keep updated the national inventory of sources of contamination by solid urban residues. It also provides a program of subsidies and credits.

The Chapter on sanctions provides fines between Pts. 1,000 and Pts. 1-million.

Law Number 42/1975

Law Number 42/1975, which is fairly complete when regulating the different aspects of municipal intervention, does not provide sufficient treatment for the extra-municipal sphere.

The compulsory adaptation of EC Directives to Spanish internal legislation provided the ideal opportunity to correct this lack in legislation. The resulting provision was Royal Legislative Decree Number 1163/86, 13 June 1986.

The Royal Legislative Decree Number introduces three elements:

- (1) The definition of the residue and the concept of management;
- (2) The creation of a National Management Plan, to be drafted by the Government, and residue management plans which are the responsibility of Regional Governments; and
- (3) The obligation for companies to manage and Town Councils to provide Central Government, through Regional Governments, information on the management of residues.

Royal Decree Number 319/1991

Royal Decree Number 319/1991, 8 March 1991, is essentially an adaptation of EC Directive Number 85/339.

Competence for the organization and authorization of management is basically municipal. It can be assumed by Provincial Deputations or Councils when consortia are formed in order to provide services in an extra-municipal capacity, or where Deputations or Councils subrogate municipal competence when no Town Council assumes the obligation to provide service or a cooperative association or integration into a consortium is not permitted.

Toxic And Hazardous Residues

Law Number 20/1986 contains a basic legal regime, in line with the provisions of Article 149.1.23 of the Spanish Constitution and is, therefore, a law with minimum requirements whereby Regional Governments may determine additional rules on protection. The law calls for:

- (1) Prevention of possible risks to human health, natural resources, and the environment;

- (2) Impediment to the transfer of contamination from one receiving media to another;
- (3) Sponsoring of recuperation of matter and energy contained in residues;
- (4) Sponsoring of technological development to permit re-usage; and
- (5) Sponsoring of low residue generation technologies.

One innovation in the Law is the attribution of liability for offenses to the legal titleholder of the residues, a capacity which is acquired by legal transfer thereof, the original title corresponding to the generator and, should he be unknown, to the first known titleholder.

The Law gives a conventional definition of toxic and hazardous residues, and it characterizes them by their content of certain matter and substances indicated in the Appendix, "in concentrations or quantities which present a risk for human health or the environment". It empowers the Government to determine such concentrations or quantities.

In this case, EC Directive Number 319/78 was followed, with only the addition of three types of substances: used oil, residues from the titanium oxide industry, and PCB and PCT, which are developed separately in the EC ruling, as occurs also in the regulatory development of the Law.

Radioactive and mining residues, emissions to the atmosphere, and effluents, the dumping of which to sewers, bodies of water, or the sea is regulated by legislation in force, are excluded.

The management of toxic and hazardous residues requires prior administrative authorization, issued by the competent authority.

Although the Law does not specify how application is to be made, it is clear that results can only be guaranteed following a study on environmental impact, and the Regulation is channelled in this direction.

The authorization will state the period and conditions in which it is granted, and it will be subject to contracting by the applicant of a liability insurance and a bond to respond for fulfillment of these conditions.

Expenses arising from the various management operations (collection, storage, transport, treatment, or elimination) "will be for the account of the producing or managing persons or entities performing such operations or bound to perform such operations". However, if such party has assigned legal title to a third party,

either for re-usage or elimination, such third party will be legally responsible for elimination of the residues, independent of the contractual relationship between the parties.

Public Administration will be responsible for the planning and regulation of the management process for toxic and hazardous residues in all phases and spheres, as well as for sponsoring those technologies and procedures which signify a lower production of residues or better utilization thereof. Since competence for residues is transferred to Regional Governments, it appears to be clear that the immediate exercise and surveillance of production and management processes should be carried out by environmental organs pertaining thereto, to further ensure fulfillment at State level of the basic Regulation.

State authorities, in line with the forecasts provided by Regional Governments, will draw up a National Plan for Toxic and Hazardous Residues, which will be valid throughout Spain. This plan is to consist of nine programs, each with precise and direct action objectives, for a system of adhesion to the plan, and of an executive organ charged with the organization and enactment of activities entrusted by the Government for implementation of the plan.

There is also provision for the design of specific plans for certain types of residues and the limitation of certain methods of treatment such as incineration to areas with sufficient demand.

It is characteristic of the Law at all times to attribute the residue to a liable owner and liability is only transferred when the residues are delivered in a documented manner to authorize management entities, i.e., when there is a legal change of title. Liability will be joint in the base of delivery to a non-authorized person, or when there are several parties responsible for environmental deterioration.

In Article 16, the Law typifies the various offenses and qualifies and quantifies sanctions in Article 17. These can be permanent closure of the installations, and fines can amount to Pts. 100-million.

Without prejudice to the sanctions applicable, those liable must restore things "to their prior state or condition" and indemnify damages. There is a special regime for small producers when annual production is below determined limits.

The Regulation for enactment of Law Number 20/1976 was approved by Royal Decree Number 833/1988, 20 July 1988. The terms of this Regulation are obligatory with regard to:

- (1) The minimum conditions for authorization of toxic and hazardous residue producing industries and management operations;
- (2) The obligations of producers and managers; and
- (3) The confidentiality of information.

Residues are classified based on seven different characteristics, which are codified. The characteristics are given in seven tables:

Table 1: Determination of the condition of the residue. Reasons for their being abandoned (elimination, treatment, recuperation). (Code Q)

Table 2: Elimination or treatment operations to which the residues are to be submitted:

2.A. Elimination operations. (D)

2.B. Recuperation, regeneration, re-usage, or recycling operations. (R)

Table 3: Generic types of toxic and hazardous residues. (L, P, S, G / liquid, paste, solid, gas).

Table 4: Components which endow the residues with a hazardous character. (C)

Table 5: Hazardous characteristics. (H)

Table 6: Activities which generate toxic and hazardous residues. (A)

Table 7: Processes by which they are generated. (B)

A residue will be classified as hazardous only when it contains any of the components enumerated in Table 4 and, at the same time, presents the hazardous characteristics shown in Table 5.

The organ with competence to grant authorization for the installation of industries which generate hazardous residues is the Regional Government in which territory it is intended to install the industry.

A manager will be considered to be not only the person who carries out this function on behalf of a third party, but also the producer who handles his own residues.

Prior administrative authorization should be applied for to the competent organism of the Regional Government in which the treatment installations are to be located. This will contain the necessary requirements and conditions for its exercise, period of validity, and information on the liability insurance and bond contracted by the applicant, in the amount and under the regime provided in Article 28.

The transporter (manager) requires a specific authorization for the relocation of hazardous residues. The competent issuing authority is that for the environment and logically, the Regional Government where the registered offices of the transporter are located, without prejudice to the requirements demanded by legislation on the transport of hazardous merchandise.

Relocation, in the case of export of residues, is fully regulated by Ministerial Order of 12 March 1990.

Liability usually corresponds to the owner of the residues, but it will be joint when assigned to an unauthorized person or entity, or where there are several parties causing the damages.

Articles 50 and 51 classify offenses and sanctions, and they attribute sanction competence to Central Government within its scope of action, and make no specification to Regional Governments.

Competence for the authorization of activities which generate hazardous residues or for the management thereof is attributed to organs with environmental competence in Regional Governments. These are also attributed with competence for surveillance and control.

Apart from the provision of basic legislation, it is incumbent upon Central Government to:

- (1) Coordinate policy on toxic and hazardous residues;
- (2) Coordinate activities affecting more than one Regional Government;
- (3) Obtain from other public administrations the information necessary for planning and reporting to the EC;
- (4) Exercise sanctions within the sphere of its competence; and
- (5) Coordinate policy on toxic and hazardous residues with EC Member States and non-Member States.

The Order of 28 February 1989 was passed to develop the Law and Regulation on the management of toxic and hazardous residues originating from used oil and in compliance with the obligation to adopt EC Directives Number 75/639 and Number 87/101.

The Order of 14 April 1989 was passed to develop the Law and Regulation on hazardous residues, since this did not include, as such, organo-halogenated compounds and the Regulation expressly includes PCBs. At the same time, compliance is made with the obligation of incorporation into domestic legislation of EC Directive Number 76/403.

There are other provisions such as the Ministerial Orders of 28 July 1989 and 18 April 1991, which regulate the management of residues from the titanium dioxide industry, and the Order of 12 March 1990, which regulates cross-frontier relocation of hazardous residues.

Regional Legislation on Residues

The only Regional Government with its own fairly complete and coherent legislative body of legislation on this matter is Catalonia. This legislation includes:

- (1) Decree Number 64/1982, 6 March 1982, which approves partial regulation on the treatment of refuse and residues;
- (2) Law Number 6/1983, 7 April 1983, on industrial residues, regulating activities related to the management of industrial residues (IR) and mainly "special" residues (RTP); this Law has been modified by Law Number 15/1987, 9 July 1987, and by Legislative Decree Number 2/1986, 4 August 1986, which adapts it to EC requirements;
- (3) Law Number 2/1991, 18 March 1991, on urgent measures for the reduction and management of industrial residues;
- (4) Order of 17 October 1984, on technical rules for control of industrial residues; this provides minimum conditions for the construction and operation of industrial residue containers; these conditions were completed by Order of 9 April 1987, on the waterproofing of containers.

Finally, at the same time, the Regional Deputation of Cantabria has regulated the control, inspection, and surveillance of solid urban residues under Decree Number 51/1988, 16 September 1988.

Spain

Fernando Huidobro
Gomez-Acebo & Pombo
Madrid, Spain

Hazardous Waste Management in Spain

Spanish industry generates approximately fourteen million tons of waste annually (1990 estimates), of which 1.8-million tons are considered toxic and hazardous waste. The sectors most affected in Spain are numerous, but the largest contributors are clearly the chemical industry (thirty percent of the waste generated), the metal-processing industry (twenty-three percent), and, in much smaller proportions, sectors dealing with pulp and paper, basic metals, leather and textiles, shoes and clothing, and electronics.

With the increase in polluting waste, appropriate management and treatment is the only viable solution. In recent years, municipal authorities have become concerned with this issue. The current need is to make existing legislation more stringent and to begin to put controls on this waste generation. The law that currently regulates these issues is the Basic Law of Toxic and Hazardous Waste drafted in 1986, and only operational since February 1990. In addition, its management was transferred to the autonomous regions which have on hand material and human resources normally insufficient to handle these problems.

Under these conditions, the appropriate management of these wastes is an issue which for all intents and purposes still needs to be seriously addressed in Spain. Currently (1990 figures), there still exists a capacity for treatment and disposal of hazardous waste (excluding used oils) that barely surpasses 60,000 tons. In addition, this is used mainly for industrial waste of less hazardous characteristics. Furthermore, the utilization levels of these installations is very low, particularly due to lack of pressure by public authorities.

To help remedy this situation, the Spanish government approved in 1989 the National Industrial Waste Plan. This plan aims at covering, over a five-year period, minimum objectives for establishing waste treatment and disposal capacity, for on-site treatment for those

generators that due to their production volumes or characteristics may require it, for recovery of materials and energy contained in waste, for the development of waste minimization programs, as well as for establishing awareness campaigns and beginning a wider program of identification, analysis, and resolution of the problems of contaminated sites.

It is expected that with these measures it will be possible to increase waste management capacity up to the level of 800,000 tons through the establishment of three incineration plants with a yearly capacity of 100,000 tons, five chemical treatment plants that will manage 200,000 tons per year, and ten secured deposits with an overall capacity of 440,000 tons per year.

In this context, the trend in coming years will be to move towards preventive policies that solve the problem at their origin. This will be done, on one hand, by promoting changes in production processes that lead to waste reduction or elimination and on the other hand, by strengthening the profit potential of waste materials via recuperation and recycling.

Regulations, public funding of large remediation efforts, public opinion, and industrial base economic conditions dictate the rise or fall in profitability of various sectors within the hazardous waste industry. One of these factors relates to the numerous and ever-increasing numbers of regulations and the increasing enforcement of laws, such as land disposal bans, focus on waste minimization, permitting timelines, and company personal liabilities.

Other factors affecting the strength of the hazardous waste industry include local opposition/siting difficulties creating high barriers to entry, the level of availability of public funding for major federal remediation projects, fluctuations in industrial production driven by the national economy, the cyclic/seasonal nature of commodity-like business, and the development of competing technologies.

Currently, there are both upward and downward pressures on the industry which make future hazardous waste growth unclear. On the one hand, there is upward pressure through extensive definition increases of what constitutes hazardous waste, while on the other hand, there is downward pressure through the impact of waste minimization programs. The key question is whether waste minimization will peak at current levels or go to the next level, requiring major investments.

In the future, hazardous waste companies will handle more concentrated and more complex waste, thereby putting greater demands on treatment technology. This will be the result of plant waste

minimization efforts. Volume reduction does not necessarily imply, however, a decline in treatment revenue (due to increased concentration and complexity of the hazardous waste). On-site treatment is expected to decrease, and there is even the threat of generators providing their own treatment. Service providers are moving towards establishing both on-site and off-site treatment and developing a closer relationship with customers.

The pace of technology development and commercialization is likely to remain moderate. This is the result of the significant regulatory barriers that exist, and the fact that new technology is developed by small entrepreneurial firms.

Legal Framework

Toxic and Hazardous Residues Legislation

Law Number 20/1986 contains a basic legal regime, in line with the provisions of Article 149.1.23 of the Spanish Constitution and is, therefore, a law with minimum requirements whereby Regional Governments may determine additional rules on protection. The law calls for:

- (1) Prevention of possible risks to human health, natural resources, and the environment;
- (2) Impediment to the transfer of contamination from one receiving media to another;
- (3) Sponsoring of recuperation of matter and energy contained in residues;
- (4) Sponsoring of technological development to permit re-usage, and
- (5) Sponsoring of low-residue generation technologies.

One innovation in the Law is the attribution of liability for offenses to the legal titleholder of the residues, a capacity which is acquired by legal transfer thereof, the original title corresponding to the generator and, should he be unknown, to the first known titleholder.

The Law gives a conventional definition of toxic and hazardous residues, and it characterizes them, by their content of certain matter and substances indicated in the Appendix, "in concentrations or quantities which present a risk for human health or the environment". It empowers the government to determine such concentrations or quantities.

Spain

In this case, European Community (EC) Directive Number 319/78 was followed, with only the addition of three types of substances: used oil, residues from the titanium dioxide industry, and PCB and PCT, which are developed separately in the EC ruling, as occurs also in the regulatory development of the Law.

Radioactive and mining residues, emissions to the atmosphere, and effluents, the dumping of which to sewers, bodies of water, or the sea is regulated by legislation in force, are excluded. The management of toxic and hazardous residues requires prior administrative authorization, which is issued by the competent authority.

Although the Law does not specify how the application is to be made, it is clear that results can only be guaranteed following a study on environmental impact. Therefore, the regulation is channelled in this direction. The authorization will state the period and conditions in which it is granted, and it will be subject to contracting by the applicant of a liability insurance and a bond to respond for fulfillment of these conditions.

Expenses arising from the various management operations (collection, storage, transport, treatment, or elimination) "will be for the account of the producing or managing persons or entities performing such operations or bound to perform such operations". However, if such party has assigned legal title to a third party, either for re-usage or elimination, such third party will be legally responsible for elimination of the residues, independent of the contractual relationship between the parties.

Public administration will be responsible for the planning and regulation of the management process for toxic and hazardous residues in all phases and spheres, as well as for sponsoring those technologies and procedures which signify a lower production of residues or better utilization thereof. Since competence for residues is transferred to Regional Governments, it appears to be clear that the immediate exercise and surveillance of production and management processes should be carried out by environmental organs pertaining thereto, to further ensure fulfillment at state level of the basic regulation.

State authorities, in line with forecasts provided by the Regional Governments, will draw up a National Plan for Toxic and Hazardous Residues, which will be valid throughout Spain. This plan is to consist of nine programs, each with precise and direct action objectives for a system of adherence to the plan and for an executive organ charged with the organization and enactment of activities entrusted by the government for implementation of the plan. There is also

provision for the design of specific plans for certain types of residues and the limitation of certain methods of treatment, such as incineration to areas with sufficient demand.

It is characteristic of the Law at all times to attribute the residue to a liable owner, and only when the residues are delivered in a documented manner to authorize management entities, i.e., when there is a legal change of title, is the liability transferred. Liability will be joint in the case of delivery to a non-authorized person or when there are several parties responsible for environmental deterioration.

In Article 16, the Law typifies the various offenses and qualifies and quantifies sanctions in Article 17. These can be permanent closure of the installations, and fines can amount to Pesetas (Ptas.) 100-million.

Without prejudice to the sanctions applicable, those liable must restore things "to their prior state or condition" and indemnify damages. There is a special regime for small producers when annual production is below determined limits.

The regulation for enactment of Law Number 20/1976 was approved by Royal Decree Number 833/1988 of 20 July 1988. The terms of this regulation are obligatory with regard to:

- (1) The minimum conditions for authorization of toxic and hazardous residue-producing industries and management operations;
- (2) The obligations of producers and managers, and
- (3) The confidentiality of information.

Residues are classified based on seven different characteristics, which are codified. The characteristics are given in seven tables:

- (1) Table 1: Determination of the condition of the residue. Reasons for their being abandoned (elimination, treatment, recuperation) (Code Q).
- (2) Table 2: Elimination or treatment operations to which the residues are to be submitted:
 - (a) Elimination operations (D).
 - (b) Recuperation, regeneration, re-usage, or recycling operations (R).
- (3) Table 3: Generic types of toxic and hazardous residues (L,P,S,G/ liquid, paste, solid, gas).
- (4) Table 4: Components which endow the residues with a hazardous character (C).

Spain

- (5) Table 5: Hazardous characteristics (H).
- (6) Table 6: Activities which generate toxic and hazardous residues (A).
- (7) Table 7: Processes by which they are generated (B).

A residue will be classified as hazardous only when it contains any of the components enumerated in Table 4 and, at the same time, presents the hazardous characteristics shown in Table 5.

The organ with competence to grant authorization for the installation of industries which generate hazardous residues is the Regional Government in the territory which is intended to install the industry. A manager will be considered to be not only the person who carries out this function on behalf of a third party, but also the producer who handles his own residues.

Prior administrative authorization should be applied for to the competent organism of the Regional Government in which the treatment installations are to be located. This will contain the necessary requirements and conditions for its exercise, period of validity, and information on the liability insurance and bond contracted by the applicant, in the amount and under the regime provided in Article 28.

The transporter (manager) requires a specific authorization for the relocation of hazardous residues. The competent issuing authority is that for the environment and, logically, the Regional Government where the registered offices of the transporter are located, without prejudice to the requirements demanded by legislation on the transport of hazardous merchandise. Relocation, in the case of export of residues, is fully regulated by the Ministerial Order of 12 March 1990.

Liability usually corresponds to the owner of the residues, but it will be joint when assigned to an unauthorized person or entity, or where there are several parties causing the damages. Articles 50 and 51 classify offenses and sanctions, and they attribute sanction competence to central government within its scope of action, and make no specification to regional governments.

Competence for the authorization of activities which generate hazardous residues or for the management thereof is attributed to organs with environmental competence in Regional Governments. These are also attributed with competence for surveillance and control.

Apart from the provision of basic legislation, it is incumbent upon central government to:

- (1) Coordinate policy on toxic and hazardous residues;
- (2) Coordinate activities affecting more than one Regional Government;
- (3) Obtain from other public administrations the information necessary for planning and reporting to the EC;
- (4) Exercise sanctions within the sphere of its competence, and
- (5) Coordinate policy on toxic and hazardous residues with EC Member States and non-Member States.

The Order of 28 February 1989 was passed to develop the Law and Regulation on the management of toxic and hazardous residues originating from used oil and in compliance with the obligation to adopt EC Directives Number 75/639 and Number 87/101.

The Order of 14 April 1989 was passed to develop the Law and Regulation on Hazardous Residues, since this did not include, as such, organo-halogenated compounds, and the Regulation expressly includes PCBs. At the same time, compliance is made with the obligation of incorporation into domestic legislation of EC Directive Number 76/403.

There are other provisions, such as the Ministerial Orders of 28 July 1989 and 18 April 1991, which regulate the management of residues from the titanium dioxide industry, and the Order of 12 March 1990, which regulates cross-frontier relocation of hazardous residues.

Regional Legislation on Residues

The only Regional Government with its own fairly complete and coherent legislative body of legislation on this matter is Catalonia. This legislation includes:

- (1) Decree Number 64/1982 of 6 March 1982, which approves partial regulation on the treatment of refuse and residues;
- (2) Law Number 6/1983 of 7 April 1983 on industrial residues, regulating activities related to the management of industrial residues (IR) and mainly "special" residues (RTP); this Law has been modified by Law Number 15/1987 of 9 July 1987 and by Legislative Decree Number 2/1986 of 4 August 1986 which adapts it to EC requirements;

- (3) Law Number 2/1991, 18 March 1991, on urgent measures for the reduction and management of industrial residues;
- (4) Order of 17 October 1984 on technical rules for control of industrial residues; this provides minimum conditions for the construction and operation of industrial residue containers; these conditions were completed by the Order of 9 April 1987 on the waterproofing of containers.

Finally, at the same time, the Regional Deputation of Cantabria has regulated the control, inspection, and surveillance of solid urban residues under Decree Number 51/1988 of 16 September 1988.

Liability for Damages to the Environment

Legal Framework

Under the Spanish legal system, the liability for damages from pollution or damages to the environment may be:

- (1) Criminal Liability for damages to the environment, ruled by Sections 347 bis and 348 of the Spanish Penal Code, contains the legal definition of "Environmental Crime". Such liability is strictly personal or individual and is only attributable for acts or omissions by natural persons but not to legal persons or entities. As a consequence, only company directors, managers, or employees may be accused criminally of an environmental crime. However, civil liability *ex delicto* for damages to the environment (from the environmental crime) may be attributed directly to the company directors or managers and indirectly, as a vicarious liability, to the company itself.
- (2) Governmental or administrative liability for damages to the environment is legally established with a mandatory nature:
 - (a) In the general laws relating to public health and welfare (Law Number 14/1986 of 15 April) and in the General Consumer Protection Act of 24 June 1984.
 - (b) With a special character, additionally, administrative liability is established in national and regional acts and regulations for environmental protection.
 - (c) In all of the above legal provisions of administrative liability, the person or company producing damages to the environment or generating toxic or hazardous waste is

subject to strict liability to the public administration, and is sanctioned with fines or disciplinary sanction. These may affect the property of the company or person having caused the damages or imply the withdrawal of license for their industrial or professional activity. The attribution of such administrative liability is independent of any other liability, whether civil or criminal. Moreover, it is a legal liability of public order, the economic or financial consequences of which may not be under contractual basis assumed by or transferred to third parties because of its (punitive) nature.

- (3) General civil liability for damages caused to third parties is ruled under Sections 1902 *et seq.* (1907 and 1908) of the Civil Code. It is legal (non-contractual) liability in tort which arises from or as a consequence of acts and/or omissions executed and/or omitted by the liable tortfeasor and/or attributable to a vicarious responsible party based upon negligent behavior of the party causing the damages, and may be broadly insured through a general civil liability policy with coverage for operational liability, employer's liability and professional liability, excluding, in all events, coverage for wilful misconduct by the insured (the company) and/or its employees.
- (4) Civil liability to third parties for environmental pollution is a type of civil liability in which the fault principle has been displaced by the principle of strict liability. Moreover, according to Supreme Court decisions, the liability of the polluter (as well as of the manufacturer) producing damages to third parties and/or consumers is either *prima facie* presumed, or the burden of proof is reversed.

A claim in tort from environmental impairment liability may be made by any third party against any person or legal entity where attribution of the damage can be proved. Where several tortfeasors have caused damage concurrently, each is jointly and severally liable for the damage produced. The plaintiff may elect which tortfeasor to sue. A tortfeasor who has been sued may, if he chooses, bring another tortfeasor into the legal proceedings as a liable party. A tortfeasor against whom damages have been awarded may seek contributions from the other tortfeasors not concerned in the lawsuit. Where different damage is identified as produced by each of several tortfeasors, each such tortfeasor must be declared liable in respect of the damage caused by him.

Environmental Liability may be insured under a special coverage that may be agreed upon between the insurer and the policy holder and/or the insured, with the general limits for coverage of fines and penalties as well as willful misconduct by the insured, the policy holder, and their employees.

Due Diligence and Disclosure in Mergers and Acquisitions

Legal Audit

In company mergers and acquisitions, environmental audit is becoming a vital task for buyers and legal advisors in due diligence implementation. Under Spanish law, the vendors will be only liable to third parties for hidden defects or vices and according to the Commercial Code because the transaction involved takes place between entrepreneurs, and there is a very limited room for denouncing inherent or hidden defects, as well as a short period of statute of limitations. Therefore, environmental audit is becoming a key issue for the legal audit to be implemented before the transaction of merger and acquisition is executed between the parties.

Moreover, environmental issues are mixed and involve several legal issues which should be ascertained during the due diligence period to be able to introduce warranties and covenants to protect and/or to avoid any eventual and future liability of the buyer.

Regarding Corporate Matters

The following is a brief outline of legal concerns regarding corporate matters in relation to environmental hazards and the duty to disclose.

- (1) Public deed of incorporation of the target company:
 - (a) Public deed of incorporation, bylaws and amendments thereto;
 - (b) Examine whether the company's main activity does belong to a regulated sector on environment, and
 - (c) Registration in the mercantile registry and other special registries.

- (2) Powers granted by the target company:
 - (a) To the board of directors, and
 - (b) To other high executives of the company.
- (3) Internal documents of the target company:
 - (a) Minutes of ordinary and extraordinary general shareholders meetings, and
 - (b) Minutes of board of directors meetings.

Regarding Assets of the Company

- (1) Title to real property, buildings, and fixed assets of the target company:
 - (a) Title deeds;
 - (b) Registry information;
 - (c) Municipal licenses, and
 - (d) Industrial licenses.
- (2) Title to moveable assets of the target company:
 - (a) Inventory of permanent installations, machinery, motor vehicles, and equipment (indicating public registration, if any), and
 - (b) Stock inventory and raw materials.
- (3) Industrial property rights of the target company:
 - (a) Industrial and intellectual property rights, indicating granting date, proof of tax payments made, remuneration, appeals, etc. Check whether the company is the sole beneficiary of the intellectual property rights;
 - (b) In particular:
 - (i) Licenses: grantor and object of the licenses; possibility of transferring the rights to the licenses to third parties.
 - (ii) Patents and trademarks: any patent and/or trademark registered by the company or its subsidiaries.

Regarding Agreements Executed by the Company

- (1) Agreements in force of the target company:
 - (a) Sales, loans, and credit agreements;
 - (b) Supplies and purchase agreements, and
 - (c) Insurance Contracts:
 - (i) Property and casualty policies;
 - (ii) General civil liability policies;

Spain

- (iii) Professional indemnity policies;
- (iv) D & O liability policies;
- (v) Product liability policies;
- (vi) Environmental impairment liability policies;
- (vii) Name of insurers, risks, amount of cover, premium, and duration (if otherwise than at an annual renewal).
Are insurances adequate for environmental liability coverage?

Regarding Labor Matters

- (1) Degree and reason for strikes and labor conflicts which have occurred during the last five years;
- (2) Pending labor lawsuits, and
- (3) Labor disability records.

Regarding Administrative Matters

- (1) Authorizations and licenses (foreign investment restrictions), Licenses for the activity (incorporation and development);
- (2) Administrative concessions for exploration and exploitation, i.e., hydrocarbons and oil and gas;
- (3) Opening licenses for subsidiaries and other authorization or permits necessary in connection with the company's activities, and
- (4) Fines and penalties.

Regarding Tax Matters

- (1) Company tax declaration, and
- (2) Company contributions to expenses for implementations of environmental protection.

Regarding Outstanding Lawsuits

- (1) Environmental lawsuits in which the company is the defendant:
 - (a) Description of the lawsuits (i.e., criminal, administrative, and/or civil proceedings);
 - (b) Status of proceedings;

- (c) Amounts involved regarding environmental lawsuits, fines and penalties to be imposed, and/or civil liability damages to be paid, and
 - (d) Balance sheet provisions.
- (2) Environmental lawsuits in which the company is the plaintiff;
 - (3) Arbitration proceedings;
 - (4) Existing correspondence concerning possible lawsuits, and
 - (5) Reports concerning lawsuits decided in the last three years.

Environmental Audit

According to Spanish law and practice, the buyer must check the following questionnaire:

- (1) Documentation concerning studies on environmental impact, including:
 - (a) General description of the projects and estimates of type and amount of toxic waste disposed of and consequent emission of substances or energy;
 - (b) Evaluation of direct and indirect effects on population, fauna, ground, air, water, national monuments, etc.;
 - (c) Programed measures in order to reduce, eliminate, or compensate for significative environmental effects, and
 - (d) Programs of environmental surveillance.
- (2) Local licenses granted and notices given in relation to the application of the administrative rules on disturbing, unhealthy, dangerous, and noxious activities (warehouses containing inflammable products, risk of water contamination, noise, etc.);
- (3) Governmental control measures on contaminating emissions coming from the company;
- (4) Authorizations related to the establishment, extension, or transfer of factories (plants for measurement and samples from chimneys, situation, arrangement, extent of connections, access);
- (5) Registrations in the Industrial Registry and Combustion Registry of potentially contaminating activities;
- (6) Registration of inventory of contaminating industrial areas;
- (7) Authorizations to dispose of toxic waste, suspension, and renewal of such authorizations. In the event of no authorization, infringement and fines are imposed;

Spain

- (8) Authorizations concerning the establishment, modification, or transfer of plants or industries which have given rise to toxic waste. Suspension and renewals of such authorizations. In the event of no authorization, infringement and fines are imposed;
- (9) Copies of concession and authorization concerning the control of maritime-territorial public domain with removable plants, toxic waste, and dragging required by the Law on Coasts. Fines, penalties, and levies as a result of the above;
- (10) Certificates on the existence of an insurance or guarantee required by law on civil liability due to damage arising from hydrocarbon contamination and toxic residues;
- (11) Copies of administrative correspondence on new substances and the classification, containers, and labels used for dangerous substances;
- (12) Copies of the registration of toxic and dangerous waste;
- (13) Reports filed at the public administration on toxic waste and dangerous substances produced or imported, and
- (14) Audits for compliance with industrial safety regulations.

Criterios relacionados con la contaminación

1. GENERALIDADES

Cuando nos referimos al medioambiente es importante revisar las tipologías y los orígenes de la contaminación que se produce en el mundo.

En términos generales podemos diferenciar:

1 contaminación a-biótica() producida por causas naturales y de carácter difuso; como ejemplo tenemos la erupción del monte Pinatubo en las Filipinas, con resultados fatales para la troposfera y otras zonas a-bióticas.

Pregunta: ¿Es este tipo de contaminación importante para nosotros los valoradores?

La respuesta es negativa, dado que no podemos llevar a cabo estimaciones cuando el monte Pinatubo expele hasta 200.000 m³ de ácido sulfúrico al día.

2 Contaminación biótica() de carácter difuso y de efectos lentos; podría tener su origen en filtrado de depósitos. ¿Tiene este tipo de contaminación importancia para los valoradores? La respuesta es: posiblemente sí.

Imaginémonos la venta de un solar contaminado en el que su valor de mercado depende del grado de contaminación.

(Re)edificar en un solar contaminado exigiría una certificación de suelo no contaminado. Nosotros podemos organizar y supervisar una investigación técnica, estimar el eventual costo de adecuación y emitir un informe.

*3 Contaminación biótica de consecuencias difusas y efecto rápido. Este es el tipo de contaminación que tiene mayor importancia para nosotros, vista su demanda con el fin de concretar riesgos económicos en el mercado asegurador y tal como lo contemplamos actualmente en Holanda.

*4 Otros tipos de contaminación tales como molestias por ruidos, campos electro-magnéticos, etc. no se analizan en el presente contexto.

(*) a-biótica = aire, agua, suelo

biótica = elementos reino animal y vegetal

2. SERVICIOS

Los servicios que (actualmente) ofrecemos al mercado relacionados con los tipos de contaminación mencionados en los apartados 2 y 3 son:

A: Organización y supervisión de investigación/análisis

Para poder llevar a cabo un control técnico y suministrar informes, es preciso contratar los servicios de entidades y laboratorios especializados. Aparte de actuar como mediadores emitimos nuestro informe con información general y datos técnicos (sin aceptar responsabilidad por la fiabilidad de los datos)

B: Estimación del costo de descontaminación

En la práctica este se establecerá de forma combinada con los datos que se faciliten en el apartado A anterior.

Para mayor información véase el apartado "información básica".

C: Pre-determinación a efectos de seguro.

La cobertura del costo de eliminación de residuos después de un siniestro tal como se contempla en una póliza de incendios, de forma creciente suele ser inadecuada.

En particular considerando la estricta legislación de la CEE, y su obligado cumplimiento las mismas implicará crecientes costos de manipulación, tratamiento, incineración transporte a vertederos controlados, etc. contribuyen a incrementar los riesgos financieros tanto para los asegurados como los aseguradores.

Esta realidad nos hace acercarnos a la necesidad de verificación y cobertura (así como asesoramiento específico) para una gran cantidad de industrias en distintos ámbitos industriales.

La mezcla de materiales y sustancias (así como agentes de extinción) pueden llegar a causar grandes cantidades de residuos materiales que deben clasificarse y tratarse como materias peligrosas.

Otro aspecto también significativo desde el punto de vista de la regulación de contaminantes medioambientales consiste en que por un lado se pueda prevenir contaminación seria del suelo y otras zonas bióticas; y por otro se contribuya a generar grandes cantidades de residuos que deben ser manipulados y debidamente tratados.

Contemplando distintos escenarios, es posible llegar a una estimación de PMP (Pérdida Máxima Posible)

La estimación debe basarse en pérdida material total o parcial de una ubicación de riesgo, en la que, después de un siniestro deba contemplarse un alto costo en la manipulación y tratamiento de los residuos.

Para ello, deben tenerse en cuenta los siguientes aspectos:

- Las propiedades específicas de las sustancias y materiales almacenadas.
- Posibles cantidades de residuos luego de un siniestro.
- La presente legislación local/nacional/internacional
- Técnicas y costos de manipulación y transporte.
- Las actuales posibilidades y costo de tratamiento, transporte y vertido autorizado, etc.

Finalmente el costo o costos (si se incluye o excluye una estimación de descontaminación para suelo y aguas subterráneas) se determinaría en un informe detallado, que permita contemplar una cobertura en el mercado asegurador.

• International
 • Legislation
 • Environmental Affairs

• A-Bior C
 • Natural Source
 • Diffuse

Ladder of Removal

• Incineration without Energy-profit
 • Incineration with Energy-profit
 • Recycling / Re-utilisation
 • Qualitative Prevention
 • Quantitative Prevention

Waste Materials
 A-Bior C
 A-Bior C
 A-Bior C

Pollution (1)

• A-Bior C
 • Natural Source
 • Diffuse

200.000 M3 Sulphuric Acid/Day

• Liability ?
 • Fire Insurance ?

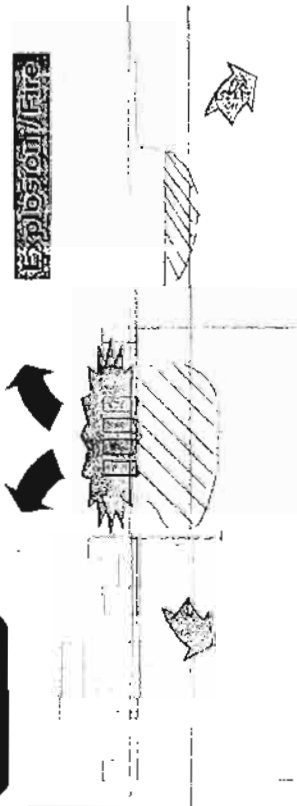
Pollution (2)

• Point C
 • Slowly Affecting
 • Diffuse

• Liability ?
 • Fire Insurance ?

Pollution (3)

- 2 etc
- Rapidly Affecting
- Possibly Diffuse



- Liability ?
- Fire Insurance ?

Definition ?

• The cost to be made after a damage as covered by the Fire-insurance policy, concerning demolition / dismantling and handling of remainders of insured material interests, as well as transportation to the nearest permitted dump- / treatment installation

• Addition / completion with

- Sort out
- Cleaning
- Destruction / Treatment
- Dump / (Temporary) Storage

• Physical limitations ?

Possible Risk Scan

- Within the Boundaries of the Risk-Location aboveground / underground.
- Within and Outside the Boundaries of the Risk-location with restrictions.
- Within and Outside the Boundaries of the Risk-location without restrictions.

- Yes
- Yes
- No

Chemical Site



Polluted Area 50 m x 50 m x 4 m = 10.000 m³ soil
 Isopropylbenzene : E.C. nr. 601-024-00-A
 Eines nr : 202-704-5
 Not soluble in water

Risk Scan in Phases **Levels** **Timing**

Research
Analysis
(Calculation)
Risk level / Coverage

Macro
Meso
Micro

Ex Ante
Ex Post

Risk Scan in Practice

Option 1:
T-PAT: Troostwijk - Portfolio Analysis Tool

Research - Analysis - Risk level

H.R. M.R. L.R.

Timing: Ex ante
Level: Meso

Option 2:

Risk Scan in Practice

Option 2:

T-RAT: Troostwijk - Risk Analysis Tool

Research - Analysis - Calculation - Coverage

Timing: Ex ante
Level: Micro

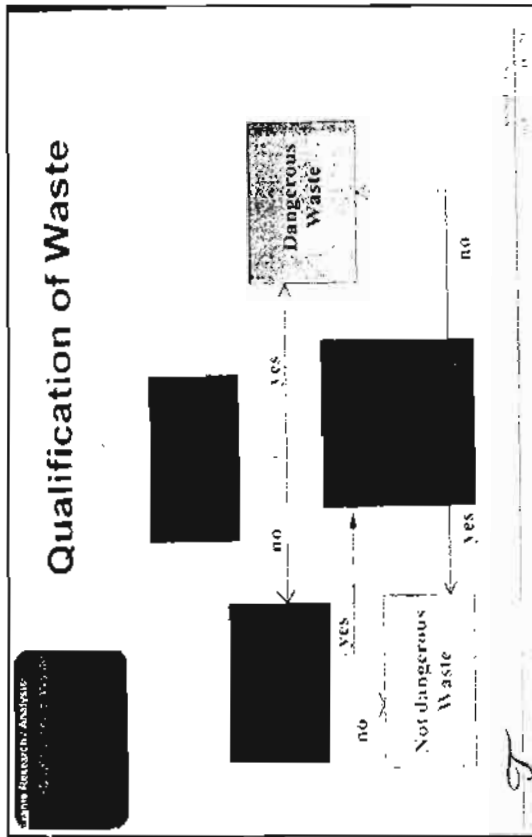
Stated Amount

Option 1:

- Ex ante Research / Analysis:
 - Qualification of Waste
 - Classifications:
 - statutory standards
 - technical standards

Ex ante Calculations:

- Determination of Masses:
 - Buildings
 - Equipment
 - Goods and Other Materials
- Determination of Reminders - MPL Analysis
- Handling
- Transport
- Treatment / Dump
- Cleaning site
- Additional *Supporting materials. Fees, Risk and profit (sub)contractors*



Classifications

Statutory Standards :

Decree classification dangerous waste:

- 1: list of processes
- 2: list of substances

Concentration limits :

Class A:	50 mg/kg
Class B:	5,000 mg/kg
Class C:	20,000 mg/kg
Class D:	50,000 mg/kg
Class E1/E2:	not relevant in this context

Classifications

Technical Standard.
Substance combustible ?

Class 0:	Not combustible
Class 1:	Hardly combustible
Class 2:	Combustible
Class 3:	inflammable

Classifications

CLASSIFICACIONES

↑

Chemical Waste Categories

Most important categories

- Category I Acid anorganic
- Category II Alkalic anorganic
- Category III Not halogens containing organic
- Category IV Halogens containing organic
- Category V Particular containing metals
- Category VI Waste products with extreme risks

J

Substances / Methods of Treatment

Substance	TS	STS	TS	Soil	Water
Toluene	4	C8	III	10	19
Nitrogen compounds	0	D7	VI	2	1
Chlorophenols	2	A17	IV	2	1
Ethylbenzene	4	C8	VI	2	19
Isopropylbenzene	3	C8	III	2	5

Methods of Treatment

- 1 = Incineration
- 2 = Thermic cleaning
- 5 = Dump C2
- 10 = Bacteriological treatment
- 19 = Biological / organic treatment

J

El Rosal de la Frontera

Huelva

J

El Rosal de la Frontera

Building 1

Offices

← 100 m →

Building 2

Chemical Storage
250 tons capacity

- Hydrochloric Acid
- Sillicones
- Red leads and prints
- Impregnating agents
- Oils and greases
- Polyurethanes

J

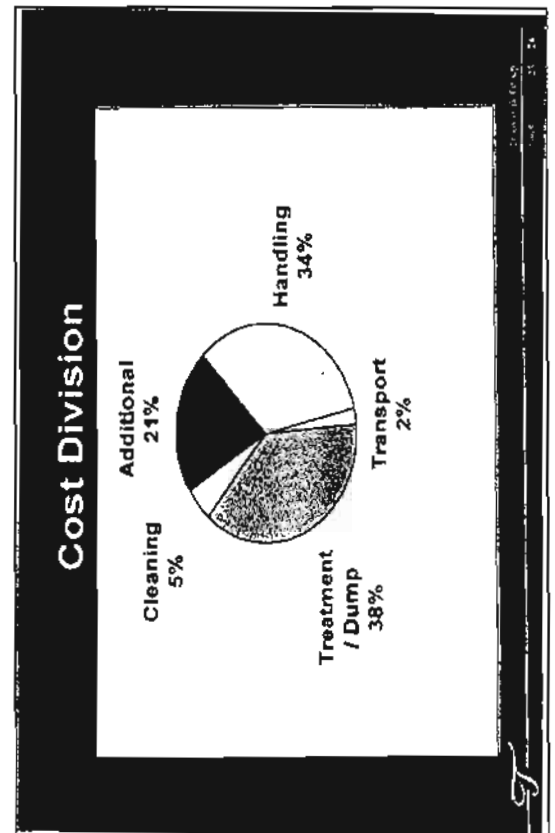
Final Calculations Results

• Masses	638 t
• Remainders	586.7 t
• Handling, Sort out on Site	42,738 x 10 ⁶ PTAS
• Transport	3,069 x 10 ⁶ PTAS
• Cleaning	5,691 x 10 ⁶ PTAS
• Sampling, Fees, Supporting Materials, Index cost development	26,583 x 10 ⁶ PTAS
• Treatment / Dump	46,958 x 10 ⁶ PTAS
• Total cost in ex ante calculations	125,939 x 10 ⁶ PTAS

Comparison Insured Sum Material Interests / Cost Ex ante Calculation

• Buildings	58.537 x 10 ⁶ PTAS
• Equipment	16.260 x 10 ⁶ PTAS
• Goods and other Materials	97.561 x 10 ⁶ PTAS
• Total Insured Sum	172.358 x 10 ⁶ PTAS
• Coverage cost of removal 10 %	17.236 x 10 ⁶ PTAS
• Ex ante calculation	125.039 x 10 ⁶ PTAS

21% of the Insured Sum



- ### Criteria Risk Scan Report
- Type of risk
 - Site description
 - Construction of buildings
 - Equipment / process - layout
 - Goods / Storage
 - Risk classification present materials
 - General and specific safety factors
 - Sewersystems
 - Condition of siteground and soil
 - Environmental situation
 - Licences and exemptions