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REVIEW OF THE INTERNATIONAL COMPENSATION REGIME

COMPENSATION FOR ENVIRONMENTAL DAMAGE UNDER THE AUSPICES OF THE CLC-FUND CONVENTIONS

Document submitted by the French delegation

***Summary*:**	Delegations will find a study annexed to this document made by Professor Piquemal on several aspects of the concept of environmental damage leading to the right to compensation under the current Conventions, subject to amendments to the IOPC Fund's Claims Manual.
***Steps to take*:**	This document is submitted as a background paper.

1 At the session of the Working Group held last March, the Group recognised the need for the international system to take better account of compensation for damage to the environment.

2 The Working Group also felt that this improvement could be made through revision of the policy of the Fund on this subject and without changes to the text of the conventions. Nonetheless, because the concept of environmental damage can be interpreted in many different ways, interested delegations were requested to work to strengthen this concept and to propose changes to the Claims Manual.

3 With this in mind, delegations will find in the annex to this document a study by Professor Piquemal, who has sought to identify certain aspects among the components of environmental damage that could quickly be taken into account for revision of the IOPC Fund's Claims Manual.

This study covers the following points:

- Environmental damage can be precisely defined linking it to damage inflicted to property. In marine areas under the sovereignty or sovereign rights of a coastal State that is victim of pollution, the marine ecosystem and its resources form a collective asset under the jurisdiction of that State and represent an important, undeniable right. This has been corroborated by the fact that environmental damage and the need for clean-up are now taken into account in an increasing number of legal instruments, under both international and national law.

- Taking into account practical difficulties frequently hindering individual requests for compensation, the concept of recourse for collective damage to a State appears to be better suited for specific compensation of environmental damage, at least in an initial period.

- Interpretation of the concept of "reasonable measures" should make it possible to understand environmental damage better and to determine realistically the field of application of the system of compensation through adaptation of the Claims Manual and its implementation measures, specifically through the use of environmental impact studies (EIS).

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ANNEX

ENVIRONMENTAL DAMAGE: A BREACH OF A QUASI-PATRIMONIAL RIGHT

1 Which are the legal grounds for the right to compensation for environmental damage?

1.1 In the definition given to environmental damage, the nature of and the basis for the right to compensation differ. This damage is often described as "...damage suffered by the natural environment or one of its components, considered as a collective asset, independent from its repercussions on persons and property".[<1>] But it is always stated that this definition does not imply a clear separation between environmental damage, which concerns only non-appropriable elements of the environment, and damage from pollution leading to deterioration of private property. The following discussion refers to the fact that environmental damage, when occurring in marine spaces under the sovereignty or the sovereign rights of a coastal State, most frequently affects private property, but also, and above all, collective assets, specifically all the resources forming the marine ecosystem over which the coastal State possesses rights codified in international law.

1.2 **Environmental damage is sometimes described as being beyond compensation for technical and economic reasons**.[<2>] This argument, while quite valid several years ago, is no longer truly pertinent in light of the large body of national, international and European Community law recognising this type of damage and related claims for compensation.

1.3 Despite scientific progress made, it will always be technically difficult to make reliable quantitative measurements. In light of several precedents pronounced by courts, this

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[<1>] See, for example, the report of Professor E. Rehbinder and the bibliographical references in the collective work, *Colloque de Nice 1991*, Ed. Economica Paris, 1992, published by the Société française de droit de l'environnement.

[<2>] If this argument could still be upheld 30 or 40 years ago, progress since then, both in the economic models and scientific studies, now make that argument obsolete. It is not our intention to establish an exhaustive list of the work undertaken in this domain and taken into account by several courts, but simply to refer to a few of the following works, which is in no way an exhaustive list: Bonnieux F. and Rainelli P. (1990), "L'affaire Amoco-Cadiz: problèmes de mesure and de réparation des dommages" in *Espaces and Resources Maritimes*, no. 4 CERDAM Nice, Paris Editions PUF, pp. 85-104; Coase R.H (1960), "The Problem of Social Cost", *Journal of Law and Economics*, 3, pp. 1-44; Desaigues B. and Point P. (1990a), "Les méthodes de détermination d'indicateurs de valeur ayant la dimension de prix pour les composantes du patrimoine nature", *Revue Economique*, 41, pp. 269-319; Desaigues B. and Point P. (1990b), "The Valuation of Natural Assets: Linking Patrimonial Accounts and National Accounts", *International Conference on Environmental Cooperation and Policy in the Single European Market*, European Association of Environmental and Resource Economists, University of Venice, Department of Economics; Desaigues B. and Point P. (1990c), "L'économie du patrimoine naturel: quelques développements récents", *Revue d'Economie Politique* 100, pp. 707-785; Fischer A.C., Krutilla J.V., Cichetti C.L. (1972), "The Economics of Environmental Preservation: A Theoretical and Empirical Analysis", *American Economic Review*, 62, pp. 605-619; Gosselink J.G., Odum E.P., Pope R.P. (1974), "The Value of the Tidal Marsh", Center for Wetland Resources, Baton Rouge, pp. 30; Mitchell R.C and Carson R.T. (1989), "Using Surveys to Value Public Goods: the Contingent Valuation Method", Resources for the Future, Washington D.C; Point P. (1986), "Eléments pour une approche économique du patrimoine naturel" in *Les comptes du patrimoine naturel*, Colloque de l'I.N.S.E.E, series C, pp. 449-533; Point P. "Principles économiques and méthodes d'évaluation du préjudice écologique" in Colloque de Nice SFDE op cit, (provides bibliographical references on this subject); Ramsey F. (1928), "A Mathematical Theory of Saving", *Economic Journal* 38, pp. 543-59; Rémond-Gouilloud M. (1990), "Le prix de la nature: l'évaluation du patrimoine naturel", *Revue française d'administration publique*, 53, pp. 61-68; Untermeier J. (1981), "Le droit de l'environnement. Reflexions pour un premier bilan", *Année de l'environment*, CEDRE Nice, pp. 1-123; Willig R.D. (1976), "Consumers' Surplus without Apology", *American Economic Review*, 66, pp. 589-597.

argument has lost much of its relevance, especially if the compensation mechanism is based on an environmental impact study which has been properly carried out. This will be dealt with farther along in this study.

1.4 From the point of view of economic considerations, opponents to the idea of environmental damage argue that evaluation of damage is a "non market" consideration. This argument is hardly valid because in the case of environmental damage affecting marine areas where a State has sovereignty or sovereign rights over the resources found there, its assets are directly affected. Furthermore, in almost all legal systems, courts agree to grant compensation for incalculable wrongs, for example for moral suffering, which, by definition, is given a "non market" value, applying other criteria.

1.5 **Law can no longer ignore this compensation**. While its implementation raises problems of evaluation, the choice of one or several evaluation methods should not be an obstacle to the use of an aspect that has increasingly been seen as an inseparable component of any coherent legal mechanism of a system of compensation. Even if in his second decision of 10 January 1988 the judge of a Chicago court in the case of the Amoco Cadiz limited compensation to damage that was economically quantifiable, compensation for environmental damage is increasingly based on numerous legal precepts, several examples of which are provided in this study as illustration.

1.6 First of all, it should be pointed out that common law governing compensation requires that in order to be compensated all damage, whether material or moral, be linked through a relationship of causality. In most cases, there is no direct causation between damage and a pollutant. This relationship occurs through the intermediary of an air-water environment that receives and transmits pollution. Based on this argument, one author concluded that the infringement of the rights of a private party is only a repercussion of earlier environmental damage.

2 Definition of environmental damage and its relationship with the concept of collective assets and collective property, for which the State is the representative.

2.1 Whatever the basis for the system adopted, responsibility implies the existence of three elements: damage, an event, and a link of causation between this event and the damage.

2.2 Environmental damage is often defined as "degradation of natural elements". One author defined it as "direct damage to the environment as such, regardless of its repercussions on persons and property".

2.3 **It is possible, however, to hold that environmental damage affects collective interests**. When environmental damage affects a marine area under sovereignty or the sovereign rights of a coastal State, collective interests, for example the biomass, are affected that are represented by that State, as the holder of the rights to assets over all biological resources found there.

2.4 This interpretation is confirmed in the United Nations Convention on the Law of the Sea of 10 December 1982 in an analysis of the rights of a coastal State, in its territorial waters and exclusive economic zone (EEZ). As for the territorial waters, the Convention refers in its Article 2 to the sovereignty of a coastal State over this area, which is totally assimilated to its territory, including the air space, sea bed and seabed resources. Ever since then, damage caused to the marine environment in this area having had repercussions on any one of these resources should be compensated because it undermines a coastal State's rights to its assets.

2.5 Even though it has only jurisdictional rights and powers in its exclusive economic zone, environmental damage should, nonetheless, be compensated, because under Article 56, paragraph 1a) of the Convention on the Law of the Sea, a coastal State has "sovereign rights over exploration and exploitation, conservation and management of natural resources, biologic or non biologic, in the waters overlying the seabed, the seabed

and seabed resources, as well as other activities related to exploration and exploitation of the area for economic benefit…" Environmental damage in this area also affects the economic rights of a coastal State and must be compensated. As for the legal definition of the legal identity of the victim of the environmental damage, the link with a State provides a reply meeting the above-mentioned principles. Thus, as noted above, a State, as owner or exclusive manager of all environmental resources in these marine areas within its sovereignty or jurisdiction, would certainly be the legal entity best placed to represent the common interest under an international system of compensation for this type of damage.[3]

2.6 Considering the State as intermediary makes it possible to counter the assertion that in the law governing civil liability, it is the person to whom a damaging act has caused harm who can seek compensation. **If compensation for environmental damage on the high seas occurs in the absence of a victim having a right to compensation in marine areas under the sovereignty or sovereign rights of a State, the latter has a right to compensation**. Recourse to the concept of collective damage under these circumstances seems well accepted in cases of environmental harm, given the frequent difficulties that an individual has in defending the environment.

3 Compensation for environmental damage is found in international and national legal systems

There has been a change in the position of several international organisations, including the European Union, reflecting recognition of a responsibility for environmental damage now seen **as a part of the principles of civil liability for damage to persons and property**. According to international agreements in force or in preparation, environmental damage is not defined uniformly. Nonetheless, the following common characteristics are always found: this type of damage concerns collective interests and not individual interests, and this type of damage is difficult to quantify in spite of attempts to use very diverse evaluation methods.

3.1 International conventions

3.1.1 Several international legal instruments have incorporated liability relating to environmental damage, thus progressively expanding damages covered, such as "collateral interests" and "aesthetic values". It is more and more widely admitted that compensation for damage from pollution caused by an oil spill includes compensation for an environmental wrong. Even if a quantitative method sometimes still equates environmental damage with traditional economic damage converted into the cost of restoration, there is a clear trend in legal principles.

3.1.2 Among the conventions, the Council of Europe's Convention on Civil Liability for Damage Resulting from Activities Dangerous to the Environment **(the Lugano Convention of 21 June 1993)** should be mentioned. This convention expands the concept of "damage" and **includes "any loss or damage from a change to the environment**",[4] limiting

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[3] Given the function of each State's legal structure, there is no intention to interfere with power recognised in the domestic legal hierarchy. This is the case, for example, when the federal States or States recognise powers granted to decentralised agencies.

[4] The following full definition is given in the Lugano Convention: "**Damage"** means:

a loss of life or personal injury;

b loss of or damage to property other than to the installation itself or property held under the control of the operator, at the site of the dangerous activity;

c loss or damage by impairment of the environment in so far as this is not considered to be damage within the meaning of sub-paragraphs a or b above provided that compensation for impairment of the

compensation "to the costs of measures of restoration actually undertaken or to be undertaken". Even if that convention does not establish criteria for compensation or the economic evaluation of environmental damage, it unambiguously includes environmental damage within its scope of application.

3.1.3 In the same way, in a strictly marine context, the marine environment, and especially its biomass and the whole food chain, **can no longer be considered to be a *res nullius* in areas over which a coastal State exercises sovereignty or sovereign rights**. In the case of the Amoco Cadiz, a decision was reached before entry into force (1994) of the United Nations Convention on the Law of the Sea. For that case, judge McGarr did not retain, among the questions of law considered, the argument concerning the loss of marine biomass, considering that this type of damage could not justify compensation because the biomass was a *res nullius*. The coastal State's rights henceforth recognized over all natural resources in its marine areas, either biological or mineral, now make it possible to give a different legal interpretation to the status of these resources.

3.1.4 In this respect, the "functional jurisdiction" of a coastal State, recognised in the United Nations Convention on the Law of the Sea, especially for the resources in the EEZ and on the continental shelf, and jurisdictional rights for protection of the marine environment in these areas, illustrate the wearing away of the concept of *res nullius* in this domain.[<5>] Because it is impossible in areas under national jurisdiction to apply the concept of *res communis* reserved for resources on the international seabed, **a coastal State can claim compensation in the event of damage to the marine environment over which it has jurisdiction and where its marine natural resources, especially biological, are found.**

3.1.5 Article 235, paragraphs 2 and 3, and Article 304 of the United Nations Convention on the Law of the Sea do not exclude claims for compensation for environmental damage. While there is no express provision for compensation, it is in no way excluded as a matter of principle. Those articles provide for the establishment of new rules concerning liability stemming from international law.[<6>] Close study of that Convention reveals the concern of the international community to prevent pollution of the marine environment and thus to avoid environmental damage. The following articles of that Convention illustrate this major evolution in the international law of the sea:

Article 192: "**States have the obligation to protect and preserve the marine environment**."

Article 194, paragraph 2: "States shall take all measures necessary to ensure that activities under their jurisdiction or control are **so conducted as not to cause damage by pollution to other States and their environment**…"

Article 211, paragraph 1: "States…shall establish international rules and standards to prevent, reduce and control pollution of the marine environment from vessels and promote

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environment, other than for loss of profit from such impairment, shall be limited to the costs of measures of reinstatement actually undertaken or to be undertaken;

d the costs of preventive measures and any loss or damage caused by preventive measures, to the extent that the loss or damage referred to in sub-paragraphs a to c of this paragraph arises out of or results from the hazardous properties of the dangerous substances, genetically modified organisms or micro-organisms or arises or results from waste.

<5> This legal reclassification has already taken place in several cases. As illustrations, there are the cases of Brazil and Italy, where the fauna passed from the status of a *res nullius* to that of public property.

<6> Article 304 of the Convention states: "The provisions of this Convention regarding responsibility and liability for damage are without prejudice to the application of existing rules and the development of further rules regarding responsibility and liability under international law."

the adoption, in the same manner, wherever appropriate, of routeing systems designed to minimize the threat of accidents which might cause **pollution of the marine environment, including the coastline, and pollution damage to the related interests of coastal States**. Such rules and standards shall, in the same manner, be re-examined from time to time as necessary."

Article 220, paragraph 6: "Where there is clear objective evidence that a vessel navigating in the exclusive economic zone or the territorial sea of a State has, in the exclusive economic zone, committed a violation referred to in paragraph 3 **resulting in a discharge causing major damage or threat of major damage to the coastline or related interests of the coastal State, or to any resources of its territorial sea or exclusive economic zone**, that State may…institute proceedings, including detention of the vessel, in accordance with its laws."

Article 221, paragraph 1: "Nothing in this Part shall prejudice the right of States, pursuant to international law, both customary and conventional, to take and enforce measures beyond the territorial sea proportionate to **the actual or threatened damage to protect their coastline or related interests, including fishing**, from pollution or threat of pollution following upon a maritime casualty or acts relating to such a casualty, which may reasonably be expected to result in major harmful consequences." The element of assets, already mentioned concerning resources of the adjacent marine areas, is again clearly intended and is an element stemming from environmental damage.

Article 226, paragraph 1(c): "Without prejudice to applicable international rules and standards relating to the seaworthiness of vessels, the release of a vessel may, whenever it would present **an unreasonable threat of damage to the marine environment**…"

Article 229: "Nothing in this Convention affects the institution of civil proceedings **in respect of any claim for loss or damage resulting from pollution of the marine environment**." Here, the Convention uses a broad concept, "loss or damage", which in no way excludes environmental damage resulting from pollution of the marine environment.

Article 235, paragraph 1: "States are responsible for the fulfilment of **their international obligations concerning the protection and preservation of the marine environment**. They shall be liable in accordance with international law." Here the Convention directly refers to **an autonomous legal concept**, namely "the protection and preservation of the marine environment". **From this autonomy, the emergence of environmental damage directly linked to a violation of a legal obligation concerning the marine environment** can be inferred. This evolution is supported in paragraph 3 of the same article, which refers to cooperation among States "…in the implementation of existing international law and the further development of international law relating to responsibility and liability for the assessment of and compensation for damage and the settlement of related disputes…"

3.1.6 Another example is provided by the Convention on Civil Liability for Damage Caused during Carriage of Dangerous Goods by Road, Rail and Inland Navigation Vessels (CRTD), Geneva, 10 October 1989, ECE/TRANS/79. Environmental damage is defined there as "loss or damage by contamination to the environment caused by the dangerous goods, provided that compensation for impairment of the environment…shall be limited to costs of reasonable measures of reinstatement actually undertaken or to be undertaken".

3.2 European Community law

3.2.1 **European Community environmental law tends to promote compensation for environmental damage**. This evolution is very clearly expressed in the White Paper on environmental liability, presented by the Commission on 9 February 2000.[<7>] It states that

[<7>] European Commission, document COM (2000) 66 final of 9 February 2000. This document is the result of a through study carried out for several years. Since 1993, the Commission published a Green Paper on

a system of environmental responsibility covering damages caused to natural resources is necessary. That White Paper describes certain limitations to the Lugano Convention of 1993 and proposes to add to them by issuing a community directive that would clarify application of environmental liability in the field of environmental damage.

3.2.2 That White Paper seeks to establish directly the "polluter pays" principle, which also applies to compensation for environmental damage. It states: "**only through the creation of liability for damage caused to the natural environment will is be possible to render economic actors responsible for future negative effects of their economic activities on the environment itself**."[8]

3.2.3 The Commission noted that operators have a tendency to consider the environment as a "public asset", the responsibility for which falls on the whole of society rather that on an isolated operator having caused a damage. Application of the fundamental "polluter pays" principle will inevitably lead to recognition of compensation for environmental damage. "If this principle is not applied to cover the costs of compensation for the damages caused to the environment, the natural environment will remain damaged or the State, and in the end the taxpayer, will have to pay for its restitution".[9]

3.2.4 **Two observations can be made based on the European legal position, expanding the steps begun several years ago by North American legislation**.

On the one hand, in the domain of the law of the sea, sovereign rights now recognised as belonging to a coastal State over the exploitation of biological and mineral resources in its exclusive economic zone transform this legal character of the public asset whenever it is a question of resources in that zone. A coastal State must ensure their rational usage, and their destruction or alteration by a third party must be reprimanded by the State through the use of its police powers, which should ensure compensation for damage caused to this public asset. **The absence of compensation in this case will inevitably alter the nature and importance of the rights recognised as belonging to the coastal State over resources in its near-coastal areas**. In this respect, the evolution of the law of the sea, codified by the United Nations Convention on the Law of the Sea, is in full agreement with recognition of a compensation mechanism for environmental damage.

In addition, according to the European Commission, as stated in the above-mentioned White Paper, **compensation for environmental damage by the author of damage should**

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this question, and during the same year hearings were held by the European Commission and the European Parliament. The latter advocated the adoption of a directive. The Economic and Social Committee issued an advisory opinion in 1994. Several member States have endorsed European Community action in this field and throughout the drafting of the White Paper, all the parties concerned were consulted.

[8] The "polluter pays" principle is one of the longest-standing principles of environmental law. From the first texts invoking this principle, document C(74)223 (1975) of the OCDE recommended that this principle be taken into account in the evaluation and determination of responsibility in cases of oil spills without excluding environmental damage. This principle is also found in a large number of international legal instruments and the founding treaties of the European Community. In the preamble to the International Convention on Oil Pollution Preparedness, Response and Cooperation of 1990, the "polluter pays" principle is described as being a general principle of international environmental law.

Furthermore, it is clear that after an analysis of principle 16 of the Rio Declaration that this principle is closely linked to the concept of intemalisation of the costs of protecting the environment, which can take two forms. On the one hand, it is a question of partial internalisation that takes into account that the costs of preventive measures, control and reduction of the pollution and, on the other hand, of total internalisation of the costs. This concerns all of the costs directly or indirectly created by the pollution, including compensation and the cost of restoring the status before the environmental damage.

[9] White Paper presented by the European Commission, p. 12.

be coupled with increased prevention and precaution.[10] This argument is important under a system of compensation such as that of the IOPC Funds. **Far from increasing the economic costs of the system, as some feel is unavoidable, well-defined coverage for compensation for the environmental damage is likely, on the contrary, to limit and stabilise costs, taking into account its dissuasive and preventive effects on the potential authors of pollution damage**. In this case, compensation for environmental damage improves application of the fundamental principles on which contemporary environmental law is based: the "polluter pays" principle, prevention and precaution.

3.2.5 Furthermore, expansion of the CLC-Fund system of compensation applying a broader interpretation of environmental damage is sometimes presented as a danger affecting the "real victims" by restricting and diluting payments. In addition to the argument of prevention, this interpretation does not appear to be truly applicable for financial and legal reasons. Among the financial considerations, any increase in maximum compensation under the IOPC Fund, if accepted, will at least partially counter the argument of a risk of conflict among several categories of damages. As for the risk of dilution, the evolution described above proves that the original damage first affects the environment as a transmission vector for a whole range of economic harm. The rights recognised by international law as belonging to coastal States over all resources located in their adjacent marine areas makes it possible to link any wrong suffered to the exercise of rights assimilated to property rights. The State is, therefore, a "victim", the collective assets that it owns or for which it is the "trustee", having been partially or totally destroyed.

3.2.6 **As in the previous approach, European Community law creates an inseparable link in questions involving the sea between protection of fisheries stocks as stocks and preservation of marine ecosystems necessary for the maintenance of these stocks**. A communication of the European Commission of 16 March 2001 seeks to promote a strategy of integrating a need for environmental protection into the common fisheries policy. According to that document, **the strategy should favour preservation, not only of commercially important fisheries resources but also of the full marine ecosystem.**[11]

3.2.7 It is thus easy to see that very recent legal practices protect the marine environment as a measure necessary for the conservation of biological resources. Environmental damage leads to degradation of these resources and leads to damage of property of States holding rights over these resources.

[10] "If the polluters should compensate for damage caused by paying the corresponding costs, they will reduce pollution as long as the marginal cost of clean-up remains less than the amount of compensation thus avoided. The principle of environmental responsibility makes it possible to prevent damage and to internalise environmental costs, (the internalisation of environmental costs means that the costs of prevention and restoration of the environmental pollution are directly taken into account by the parties responsible for the damage, in stead of society in general)." (White Paper presented by the Commission, p 12).

[11] Communication of the European Commission to the European Council and European Parliament, *Eléments d'une stratégie d'intégration des exigences de protection de l'environnement dans la politique commune de la pêche*, COM (2001) 143 final, 16 March 2001.

3.3 National practices

3.3.1 National legislation and regulations [12]

3.3.1.1 **American federal legislation** has been especially innovative, because for the past twenty years it has recognised the existence of a right of compensation for damage caused to "natural resources" stemming from certain activities or dangerous substances. This right is not based on abstract principles, **and has sanctioned the economic consequences caused by degradation of natural resources**. This legislation is based on damage to interests or an existing right over these resources. Thus, the 1973 Trans-Alaska Pipeline Authorization Act, section 204, provided for a regime of strict liability for damage caused to property, "fish, wildlife, biotic resources or other natural resources on which the native populations of Alaska or other persons depend for their subsistence or livelihood".

3.3.1.2 American federal legislation then went further than this first approach closely linked to economic interests **by adopting the concept of environmental damage *stricto sensu***. This is the specific case of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (42 U.S.C, §§ 2701-2761), often cited as the CERCLA or "Superfund" Act. This text deals with compensation for damage caused by degradation or destruction of natural resources caused by dangerous substances.[13] It should be pointed out that the "Superfund" did not establish recourse to the courts for compensation for personal damages. It provides only for the recovery of expenses for clean up and damage to natural resources, which corresponds exactly with protection of the environment taken as a collective asset.

3.3.1.3 This new approach to environmental damage did not remain unique in American federal legislation. **Since the CERCLA Act, several other laws have again confirmed the creation of a regime of civil liability specific to the compensation of damage caused to natural resources independent from damage caused to persons and property**. The example of the Oil Pollution Act of 1990 (33 U.S.C, §§ 9601-9675) is one of the most significant manifestations in this field, following the accident of the Exxon Valdez in 1989. Subsection 1002(a) of this law has created a strict regime of liability integrating the concept of environmental damage, including "damage" as harm to natural resources, and providing for restoration costs.[14,15]

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[12] In the hierarchy of legal norms, some States have included provisions in their constitution for environmental protection and compensation in the event of a breach. For example, Article 45-3 of the **Spanish Constitution** of 1978 provides that in the event of violation of the obligation to defend and restore the environment (established in Article 45-2 of that constitution), the courts will establish penal or administrative sanctions, **as well as the obligation to compensate that damage.** This is also the case of the **Brazilian Constitution** of 1988, Article 224-3, which provides that persons having harmed the environment will be subject to penal or administrative sanctions, independently of the obligation to repair the environmental damage caused.

[13] Natural resources are defined in section 107 as including "the soil, fish stocks, wildlife, biotopes, air, water, underground water, water reservoirs and other resources of the same type, whether belonging to or are administered or managed…by the United States, by a State or local government, by a foreign government, an Indian tribe…or any member of an Indian tribe".

[14] "Notwithstanding any other provision or rule of law, and subject to the provisions of this Act, each responsible party for a vessel or a facility from which oil is discharged, or which poses the substantial threat of a discharge of oil, into or upon the navigable waters or adjoining shorelines or the exclusive economic zone is liable for the removal costs and damages specified in subsection (b) that result from such incident."

[15] Subsection 1001(30): "remove or removal means containment and removal of oil or a hazardous substance from water and shorelines or the taking of other actions as may be necessary to minimize or mitigate damage to the public health or welfare, including, but not limited to, fish, shellfish, wildlife, and public and private property, shorelines, and beaches".

3.3.1.4 Without providing an exhaustive list of existing texts, it can be affirmed that more and more States have now incorporated compensation for environmental damage in their basic environmental law, proof of a willingness to include the legal principle of compensation in the highest level of their legislation, but making this compensation an autonomous provision added to the usual administrative and penal sanctions.[16]

3.3.1.5 In addition, several national legislations have included de facto the concept of compensation for environmental damage for a number of years on the basis of the concept of "**public marine domain**".

3.3.1.6 In the example of France, even before the creation of an exclusive economic zone (EEZ), a French law of 28 November 1963 and implementing regulations of 17 June 1966 incorporated into the public marine domain the seabed and the seabed resources of the territorial sea. The State holds property rights over all of the biological and mineral resources situated in the public domain and, as a result, can claim compensation for damage caused to the environment and, above all, to marine plant and animal life.[17] This provision modifies the legal characteristics of the damage suffered, which does not normally create a right to compensation unless it is a question of property.

3.3.1.7 In the case of environmental damage, the State can request compensation, not on the basis of moral damage, but as owner of animal and plant life on the seabed, the shores, beaches and in a broad sense the coasts **or as holder of exclusive property rights over these resources as a whole**.[18] Ownership of the public domain and the assets related to it meets

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[16] See a purely illustrative list of these basic laws listed by C. de Klemm in his article (op. cit., p 145):
- A Colombian law of 19 December 1973 (Article 16) makes private individuals responsible for pollution that they cause, as well as for damages to natural resources that are the property of the State, or for any inadequate use of these resources;
- A Brazilian law of 31 August 1981 on national environmental policy (Article 4-VII) establishes as one of the objectives of this policy the obligation for a polluter or an abusive user of environmental resources to compensate for any damage;
- An Indonesian law on the management of the environment of 11 March 1982 (Article 20) establishes the responsibility of those who have damaged or polluted the environment;
- An Italian law of 8 July 1986, creating the ministry for the environment and establishing regulations in the field of environmental damage, provides in Article 18-1 that any damage caused by an action harming the environment carried out in infraction of legislation obliges the author to make compensation;
- A Greek law of 10 October 1986 on environmental protection (Article 29) establishes the requirement that whoever pollutes or degrades the environment must pay compensation;
- A Portuguese law of 7 April 1987 (Article 40-5) opens the way to a right to compensation to local governments and citizens for damage caused to natural resources. Article 41 of this law establishes the principle of responsibility without fault for damage caused to the environment through especially dangerous activities. The evaluation method is determined by additional legislative provisions;
- A Swedish law of 11 December 1964 on nature conservation (Article 39) creates a general obligation to compensate in the event of an infraction to any legal provisions;
- An amendment of 19 June 1987 to the Swiss federal law of 1 July 1966 on the protection of nature and the landscape obligates the author of an infraction of any relative regulations to protect areas and biotopes and to assume any expenses incurred through compensation for that damage (Article 24 e).

[17] On the existence of the right of ownership over the public domain, see André de Laubadère, *Traité de droit administratif*, Paris, LGDJ, Fifth edition, p. 132 *ff.*

[18] If the State is best placed to enforce its rights over resources located in its marine areas under the IOPC Fund framework for compensation, nothing prevents it from distributing, in accordance with the regulations of its domestic law, part of the compensation representing injury to some of its citizens from the environmental damage. National courts have on several occasions been called upon to decide on losses resulting from environmental damage and its consequences. Thus, the court in Bastia, in its decision of 4 July 1985 concerning the liability of the company Montedison for pollution north of Cap

modern needs of administrative law in the field of public domain. It promotes "…use of economic resources in the public domain taken as an asset, collective property". Damage to these assets occurring through pollution damage should be compensated to the State concerned. It is more and more accepted that there is no objection of principle "…against the expansion of the concept of public domain to all environmental assets not appropriated by private individuals, namely, unappropriable territorial sea…and wildlife".[19] **Acceptation of the concept of an EEZ expands this quasi-ownership viewpoint, even if that places us outside the public marine domain**.

3.3.1.8 From the moment a coastal State is recognised by international law, the right to prohibit or limit certain activities having a repercussion on potential resources found in the marine areas under its sovereignty or sovereign rights, or in a more general way to preserve these areas, **the existence of environmental damage has won legal recognition "…to the extent that it has become the consequence of the violation of a penal provision"**.[20]

3.3.1.9 Even broader still, many legislations, defining the characteristic components of the environment, penalise damage to it. To take only an example geographically different from the preceding examples, the Italian law 349 of 8 July 1986 contains a general clause of civil liability with an obligation to restore or compensate damage by anyone in violation of laws or administrative acts, causing a change in the environment.

3.3.2 **Jurisprudence**

3.3.2.1 In the United States of America, it is also possible to establish a parallel with the provisions of French law making it possible to establish a close link between ownership of resources recognised belonging to the State and compensation in the case of environmental damage affecting the value of those resources. **The jurisprudence of the United States Supreme Court arrives at practically the same result using a different legal basis: the federal State or the federated States being a "trustee" of the natural resources**.[21] In these two cases, it be interred that the State or its subdivisions have jurisdiction to request compensation for damage to environmental assets, and **that they also have an obligation, as custodians of these assets in the collective interest of all its citizens**, and as the entity responsible for the general integrity of all public assets.

3.3.2.2 A study of the jurisprudence of the United States shows that almost all cases of pollution handled in the United States—especially all of the major transactions that have taken place—have dealt with environmental damage. In 1989 in the case of the **Exxon Valdez**, environmental damage was not only evaluated by the amount of the restoration costs but also in relation to the loss of the value of the environment during the restoration and expenses for the evaluation of damage. Without going into detail of the amounts paid,

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Corse, established that damage had been caused to an organisation of fishermen in Bastia, taking into account the damage caused to the fisheries by the incontestable loss of biomass confirmed by experts.

[19] Professor E. Rehbinder, op. cit., p. 112.

[20] Cyrille de Klemm, in the collective work, *Colloque de Nice de la SFDE*, p. 144.

[21] American legislation carries the concept of "trustee" or "fiduciary" beyond the federal State for costs stemming from environmental damage. The Oil Spill Liability Trust Fund, established under the Oil Pollution Act, provides that "payment of costs incurred by Federal, State, or Indian tribe trustees in carrying out their functions under section 1006 for assessing natural resource damages and for developing and implementing plans for the restoration, rehabilitation, replacement, or acquisition of the equivalent of damages resources determined by the President to be consistent with the National Contingency Plan". In addition to the Oil Pollution Act, see federal legislation in the Clean Water Act §311 (f); 33 U.S.C, §1251 *ff*; and the Comprehensive Environmental Response, Compensation and Liability Act §107 (f) (42 U.S.C, §9601 *ff*).

United States law has in this case, as far as legal principles are involved, clearly implemented compensation for environmental damage.

3.3.2.3 In the two cases mentioned above, the law - especially in the cases of France and the United States - provides that the State can have recourse to the courts to request compensation for a wrong caused by damage to the marine environment. It is significant to note that even before the consecration of the environmental damage by law**, the jurisprudence of the United States confirmed this concept through the rights of the public over its resources taken as a collective asset, distinct from the rights recognised to individuals**.[<22>] To consider environmental damage as collective damage also agrees fully with the broad orientations of international conventions, according to which protection of the environment is a duty incumbent upon States. It is also linked to the use made in several legislations of **general interest** in order to justify protection of the environment.[<23>] Taking into account the concept of sustainable development, permitting protection of the environment for future generations further reinforces this reference to the environment as a collective asset. Under a mechanism such as the IOPC Fund, the State becomes the natural channel for this concept in its marine spaces.[<24>]

3.3.2.4 **Another complementary legal basis can be found in favour of compensation for environmental damage.** In France, since a regulation of 27 November 1884, the Court of Cassation has applied the theory of disturbance (*troubles de voisinage*) to industrial pollution. This jurisprudence, progressively expanded, is of direct interest in the case of environmental damage to the extent that it is proven that the inconveniences are abnormal and that these inconveniences have been produced by an act imputable to the defendant. This is also the case in the United States where environmental law first originated in a set of decisions creating jurisprudence related to the right of protection against disturbance.[<25>]

3.3.2.5 The jurisprudence of several countries has awarded on diverse occasions compensation for changes in a natural balance and for reestablishment of a former natural equilibrium, even for "loss of opportunity".[<26,27>] This was the case of Decision 210 of 28 May 1987 of the

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[<22>] For example, in 1973 the federal Court of the district of Maine stated: "It is clear that the State of Maine has an interest stemming from the quality and status of its coastal waters. It has long been recognised by the United States Supreme Court and by the highest jurisdiction of State of Maine that a State has sovereign rights over its coastal waters and marine life, as well as over other natural resources, **which are different and distinct from the individual rights of its citizens**". (Maine v. Tamano, Maine District Court, 26 April 1973).

[<23>] Article 1 of the French law of 10 July 1976 regarding the protection of nature provides: "protection of nature and landscapes, the preservation of animal and plant species, the maintenance of biotic balances and the protection of natural resources against all threats of degradation from all sources **are part of the common interest**".

[<24>] Thus as already mentioned, distribution of compensation for environmental damage, if that is the case, will depend more on provisions stemming from domestic rights and the courts. As several authors have stressed, the concept of collective damage covers, first of all "individual action exercised collectively" (L. Bihl, *Gazette du Palais*, 1973.2, doc.523) characterised, if appropriate, by "the collective exercise of a right to compensation of individual prejudices" (Marty and Raynaud, *Les obligations*, 1988).

[<25>] William H. Rodgers, Jr. *Environmental Law*, second edition, Hornbook Series, West Publishing Co, 1994.

[<26>] See the decision of the *tribunal administratif* of Grenoble of 8 June 1984, Sieur Michallon, confirmed by the decision of the Conseil d'Etat of 11 July 1986, Ministre de l'Environnement v. Michallon.

[<27>] Again in the case Commonwealth of Puerto Rico v. SS Zoe Colocotroni, 1st Cir. 12 August 1980 (10 LR 20.286) the judge held that damage caused to a mangrove in the Commonwealth of Puerto Rico by oil pollution "is not only that of certain animals or plants but precisely that of the capacity of the polluted parts of the environment to regenerate and allow these forms of life for a period of time".

Italian Constitutional Court, which, after having defined the environment, ordered suppression of environmental damage. In its Decision 641 of 30 December 1987, the same Court, defining very precisely the components of the environment, arrived at the conclusion that "it should be protected, above all, because of constitutional provisions (Articles 9 and 32 of the Constitution). As a result, it must be considered as a primary and absolute constitutional issue…" [<28>]

4 Compensation for environmental damage under the CLC and Fund Conventions

4.1 It is convenient in this respect to look at the effect of the principle of compensation: that which establishes that a damaged object must be restored, in principle, to what it was before the damaging act. This principle includes compensation for environmental damage itself, taking into account that among the three components of compensation are the expense of restoration and the expense of repopulation.

4.2 The 1992 Conventions provide for compensation based on strict liability for restoration of natural resources affected by an oil spill using "reasonable measures". Taking into account the legal nature of the rights that coastal States hold over their natural resources, as mentioned above, it seems that not only is it not premature to revise application methods contained in the IOPC Fund's Claims Manual but this approach has become urgent in order to avoid directly infringing on the property rights of the States as recognised by the convergent evolution of several international treaties and domestic legislation.

4.3 Possible development of the current system

4.3.1 If we admit that the principle of compensation for environmental damage already exists in the 1992 Conventions, the Parties and the governing bodies of the Funds, taking into account progress in international and national law and progress made in evaluation methods in the exact sciences, should agree to define clearer criteria for the implementation of the Funds' policy regarding environmental damage. On this point, the IOPC Fund's Claims Manual is insufficiently clear or adopts a questionable partial approach to environmental damage with regard to contemporary international legal approaches in this field.

4.3.1.1 According to current rules under the CLC and Fund Conventions, damage that can be compensated should be based on "pollution damage" and "preventive measures". E**nvironmental damage is included in this definition and thus is provided for in the CLC and Fund Conventions.** But claims for compensation on this basis are admissible only if the claimant has suffered a wrong that can be quantified in monetary terms. Until now, the IOPC Fund has required the setting of the amount of compensation to be made not on the basis of an abstract quantification of the wrong caused using theoretical models (as is the case in the United States of America with OPA 90), but to take into account only the cost of restoration measures that have been or will be taken.

4.3.1.2 **On this basis, an expanded interpretation of compensation becomes quite possible, because, in law, a victim of a damage must, in principle, be restored to the state in which he would have been if the damaging act had not occurred**. Compensation should be equivalent to the wrong suffered (within the limit of maximum compensation) and contains detailed elements for interpretation using recent economic models and "classic" legal language, such as restoration costs (clean-up expenses and repopulation), loss of several types of income, and loss of possession. The concept of "repopulation" can be precisely interpreted, given the existence of rare species protected by international treaties.

4.3.1.3 The true legal nature of an environmental damage that can be compensated should be defined because, as is recalled in document 92FUND/WGR.3/5/1, "The majority of States have agreed that payment of claims for economic loss and pollution damage to property

[<28>] See *La spécificité du damage écologique en droit italien* by Franco Giampietro, Magistrat, Service législatif, Ministère de la Justice d'Italie. Ed. Economica, Paris, 1992.

must always remain the first priority". The concept of environmental damage that we describe in this study is directly related to this concern, to the extent that there is a wrong committed to collective assets of which the coastal State is the owner or "trustee".

4.3.1.4 Without going into details, we note that recent progress in economics and econometrics makes it possible to develop methods for evaluating intangible assets that are no longer truly abstract, as was the case several years ago (the case of the Antonio Gramsci is often cited in this respect).[29] In the case of the Amoco Cadiz, at the time of the first decision of 3 June 1987, the United States judge admitted the existence and possibility of redressing environmental damage, damage that he did not, however, compensate in his final decision, arguing that he was not convinced of the utility of environmental compensation and that he was not entirely convinced that by granting compensation to the French parties, the work would have been completed. These elements of fact linked to a subjective appreciation of each particular case do not distract from the initial legal reasoning and **leave open admissibility of a compensation for environmental damage, in principle**.

4.3.1.5 In the United States, the CERCLA law (1980) and the "Superfund" thus created reinforced this approach, even if there has been criticism of the way this fund functions. If the technique of "**contingent evaluation**" created controversy in the case of the Exxon Valdez, the NOAA report marked an important step **in the United States in the taking into account of intangible damage,** by accepting the utility of this technique and, going further, by preparing a guide of good usage for contingent evaluation.

4.3.1.6 Progress made in economics, already mentioned, provides judges with expert opinion that was still insufficiently pertinent at the time of the sinking of the Amoco Cadiz. While, before the case of the Haven, an Italian Court of Appeal in Messina reached a decision in the case of the Patmos (Decision 142 of 24 December 1993), the basis used for evaluation of environmental damage, namely equity, seemed too risky, but the Court remarked that in each specific case expert opinion concerning damage was imprecise and too general, except in the evaluation of damage to fisheries, and was imprecise on questions of the evaluation of damage to components of the marine ecosystem.[30] The use of the technique of the **environmental impact study**, introduced in numerous legislations, offers a very important tool for evaluation of environmental damage over several years.

4.3.1.7 It is convenient to observe that compensation for environmental damage cannot always be achieved by restoration of the status of the affected sites, because deterioration of a marine ecosystem is often irreversible. **Also, other forms of compensation should and can be used to remedy a situation** if restoration proves to be literally impossible or costs appear disproportionate in relation to the estimated market value of the environmental asset. "Real

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[29] It is very significant to observe that more and more legislation making possible compensation for pollution damage relies on either a decision of a judge with the help of experts for an estimate or the setting of a fixed lump sum by law, in accordance with very specific tables based on either clearly identified species, in function of the area of the destroyed or damaged natural environment or in function of other methods of lump-sum evaluation.

[30] In order to explain this decision, it must be remembered that Italian law 349-1986 provides in its Article 18 that in a case of environmental damage a judge should *ex officio* order restoration of the environment, if that is technically possible, at the expense of those responsible for the damage. If not, he must fix the monetary value of the damage. If an evaluation cannot be accurately made, he must apply equity by taking into account the seriousness of the damage, restoration costs and any profit made be the party responsible for an illegal action. General criteria for determining an amount have been set by Constitutional Court Decision 641-1987, according to which "**the damage is essentially to property**… Limited resources make it possible to apply economic parameters… Economic costs generated by the exercise of protection and management of an asset must be included in the calculation as well as those necessary to improve the possibility for private individuals and the collective interest to benefit from its advantages… **It is, therefore, possible to evaluate the cost of a damage**…" (Franco Giampietro, op. cit. p. 101). The author gives several examples where Italian judges have fixed a monetary value of compensation for environmental damage.

physical compensation for damage to a site that is geographically and functionally linked to the site of the wrong as well as replacement or substitution of nature at another site.[31] The three forms of compensation form a hierarchical order. In other words, the second and third forms of compensation cannot be sought unless the first form is impossible or unless costs are clearly excessive in relation to the environmental value of the natural resource affected. These three approaches to compensation in kind constitute a realistic approach that takes into account the fact that true restoration of nature is often impossible".[32]

4.4 **Interpretation of the concept of "reasonable measures" with reference to compensation for environmental damage through restoration.**

4.4.1 Strict interpretation of "reasonable measures" of environmental restoration in relation to compensation of environmental damage can be conditioned by two elements: a **quantitative element** justifying compensation and the use of **evaluation methods** that ensure reasonable compensation for environmental damage.

4.4.2 As for the first element, the quantitative element, **a good proposal would be that compensation for environmental damage be made only for damage above a minimum, in order to limit compensation to important damage reflecting a serious environmental wrong affecting the State concerned**. This would avoid multiple claims for compensation that would otherwise encumber the functioning of the IOPC Fund. It will be noted that this approach of a "minimum" is advocated by the European Commission in its White Paper on environmental liability mentioned previously.[33] This minimum can be either exclusively quantitative or a combination of quantitative and qualitative, in order to allow consideration of environmental damage only when it leads to a substantial or long-term wrong to the damaged environment (for example, the loss of a capacity of regeneration of a marine ecosystem affected by an oil spill). This implies a case-by-case evaluation applying general principles. The quantitative element could also be used **to fix a maximum percentage allocated for compensation of environmental damage within the total amount of compensation provided for by the IOPC Fund for distinct categories of damage**.[34]

4.4.3 As for the second element, namely the use of **evaluation methods**, the diversity of the techniques already used and the progress made in this field during the past several years, perhaps argue for not fixing rigid and unchangeable rules applicable to all possible cases. **A more pragmatic approach is probably better suited**, because every possible major damage to the environment and resources occurs under totally different circumstances. Of course, guidelines must be adopted in order to harmonise compensation granted and to ensure equitable solutions. Taking into account differentiated methods leading to equitable compensation and taking into account the circumstances of each individual case would be a realistic approach,. This approach is not absent from international law of the sea in cases of demarcation of the continental shelf or an exclusive economic zone. Diversified methods can be used as long as an "equitable solution" is reached.[35]

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[31] These examples are found in the national legislations of several countries and include the concept of "fiduciary". This is the case in the United States of America, Germany and Switzerland.

[32] Professor E. Rehbinder, op. cit., p. 116.

[33] Document COM (2000) 66 final, p. 20.

[34] This approach is used in the United States Oil Pollution Act of 1990, section 1012 of which provides that the "Superfund" establish precise percentages for distinct categories of expense.

[35] Article 74, paragraph 1, and Article 83, paragraph 1, of the United Nations Convention on the Law of the Sea.

4.4.4 It is possible to distinguish clearly the **principle** of compensation for environmental damage (compensation meeting quantitative and qualitative criteria as defined by the Members of the IOPC Fund) from **methods** of quantification of damage caused as listed in the IOPC Fund Claims Manual in order to adapt to every possible case. At any rate, the law concerning environmental damage can only be a cross section and includes, by this fact, elements from the exact sciences. It is quite natural to use methods and techniques from other disciplines.

4.4.5 This is all the more necessary because an estimation of environmental damage, according to international and national legal instruments, uses primarily two categories of techniques.

> The first seeks to convert, in function of an economic approach, the value of an environmental asset with reference to a material asset available and sought on a fictional market.[36]
>
> The second fixes a lump-sum compensation for damage with reference to several categories of wrongs, each legislation using different criteria without creating principles of universal application under international law.[37]

4.4.6 It is convenient to foresee cases in which restoration of the environment proves impossible, either for scientific or financial reasons whenever that cost would be "unreasonable". In these hypothetical cases, it would be completely inequitable that a State that is victim of environmental damage be excluded from compensation in this domain. It would be as inequitable as the case of a State that is victim of less important environmental damage for which compensation at a reasonable cost would be feasible. Whenever restoration of the environment proves impossible for the reasons mentioned above, the most equitable solution could be to pay damage and interest to the State that is the victim.[38]

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[36] Used especially in the United States in the framework of the regulations for the application of CERCLA. It is only when market methods are unavailable that implementing regulations prescribe a number of "non-market" criteria for setting an amount, offering a judge a latitude of choice, including:

- calculation of factorial revenue whenever the natural resource is a production factor of a commodity;
- comparison of transportation and subsistence costs charged to tourists before and after the accident;
- hypothetical evaluation through simulation of a market;
- comparison with other theoretical values for other public assets at non-market prices; and
- determination of the elasticity of demand of potential users.

Taking into account the practical difficulties of applying these methods, the implementing legislation allows application of a simplified procedure through the use of mathematical and computer models, especially for environmental damage affecting territorial waters and the Great Lakes.

In the United States, under the framework of the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) of 1980, amended by the Superfund amendment and the Reauthorization Act (SARA) of 1986, the Department of the Interior established a basis for estimating environmental damage. In addition, contrary to what is sometimes stated, these evaluation methods have now entered into everyday American legal and judicial practice. In addition, a certain number of entities have requested the Appellate Court of the District of Columbia to consider the legal aspect of the regulations of the Department of the Interior. The Court, in its decision of 14 July 1989 (State of Ohio v. United States Department of the Interior (DOI) et al., no. 86-1529 D.C. Cir), reinforced further the first approach by requiring the DOI to stress the reference to economic considerations of the environment.

[37] Used especially in Germany (Decree of Bade Wurtemberg of 1 December 1977, modified by the regulation of 22 December 1980 and more broadly by German federal law on responsibility in the environmental field as of 10 December 1990) and by several Italian provinces.

[38] Such a solution has already been used in several domestic legislations. Article 48-3 of the basic law of Portugal of 11 April 1987 on the environment provides that whenever restoration is impossible, those having caused the environmental damage must pay a special compensation that will be fixed by law. That is also the case of a law of Andalusia of 18 July 1989 on protected nature areas, stipulating that

4.5 The scope of a system of compensation for environmental damage using an environmental impact study (EIS)

4.5.1 In setting compensation for environmental damage, it should be determined whether the damage is irreparable or, quite the reverse, is capable of being restored at reasonable cost. In both cases, it would be convenient to establish criteria for evaluating the damaged natural resources in order to avoid disproportionate costs in the event of restoration. In fact, very frequently identical restoration of natural resources, both quantitatively and qualitatively, is either impossible or feasible only at a cost so high that such a solution seems unrealistic using a mechanism such as the IOPC Fund.

4.5.2 It is precisely this flexible and pragmatic approach that is advocated by the European Commission for compensation of environmental damage. "A reasonable cost-benefit or comparative analysis of compensation should be carried out case by case. Whenever restoration is feasible, this analysis should be based on restoration costs (which also cover the costs of evaluating damages)... If restoration is technically unfeasible or is only partially feasible, evaluation of the natural resources should be based on the cost of alternative solutions with the intention of creating natural resources equivalent to destroyed resources and of re-establishing the previous level of conservation of nature and biodiversity…"[<39>]

4.5.3 Restoration of the environment is frequently imposed by national legislation. Several countries use it, for example, in the case of mining rights, whenever exploitation ceases. The Quebec law of 22 June 1990 allows the minister responsible for the environment to order decontamination or restoration of the environment whenever there is proof of the presence of a pollutant "likely to threaten life, health, security, the welfare or comfort of mankind, to cause damage or in any other way adversely affect soil quality, plants, wildlife or other assets".[<40>]

4.5.4 **Evaluation of measures to be taken can be facilitated considerably by an environmental impact study (EIS).** An environmental impact study is provided for in one of the working documents presented during earlier meetings of the IOPC Fund's third Working Group.[<41>] It is a question of opening a new scope of application for the EIS in relation to the usual objective described in numerous international legal instruments.[<42>]

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whenever restoration is impossible restoration will be replaced by a fixed compensation in proportion to the damage caused to the environment.

Some States go even farther in providing the possibility to award damages and interest that are added to the cost of restoring the environment. This is the case, for example, of the Conservation, Forests and Lands Act of 1987 of the Australian State of Victoria, of the National Park and Wildlife Act of 1974 of the State of New South Wales and of the Freshwater Wetlands Protection Act of 1987 of the state of New Jersey, United States.

<39> White Paper on environmental liability, op. cit., p 20. This document correctly underlines differences in costs depending on the evaluation methods used and lists a number of possibilities that could be considered by members of IOPC. "Evaluation of natural resources can prove to be more or less costly, depending on the method used. Economic evaluation methods such as contingent evaluation, evaluation of replacement costs and other methods of revealing preferences, which all require surveys of a large number of persons, can prove costly if they are carried out systematically. Recourse to techniques using the "transfer of benefits" can, nonetheless, reduce considerably evaluation costs. It is especially important to develop databases concerning the transfer of benefits that contain pertinent information for evaluation, such as the Environmental Valuation Resource Inventory (EVRI). These databases can be used to place the problem in its proper context and as a directly comparable evaluation source."

<40> Quebec law modifying the law on environmental quality, L.Q. 1990, c. 26 (Article 31-43).

<41> See "Study of the International System of Compensation", submitted by Australia, Canada, Denmark, the Netherlands, Norway, Sweden and the United Kingdom (92FUND/WGR.3/5/1 of 26 February 2001).

4.5.5 An EIS is usually carried out when there is reason to believe that a proposed installation or activity risks leading to major pollution or harmful changes to the environment. The EIS evaluates the potential effects of these activities on the environment, determines the means to redress these effects and whether they are harmful in order to provide information for the agency that will decide whether the proposed activity is feasible and under which conditions. **In the case of compensation for environmental damage, the objective of the EIS would be different**. It would permit, as underlined in the above-mentioned document, "evaluation of the extent of environmental damage suffered from a disaster and the cost of other restoration measures of the environment". In the case of compensation for environmental damage by the IOPC Fund, the EIS should be carried out by an independent, approved organisation in order to arrive objectively at a choice of methods for evaluating environmental damage and measures for compensation, which implies prior environmental expertise.[<43>]

4.5.6 For strictly legal considerations, the EIS would contribute to a determination of the nature and extent of the environmental damage for which compensation has been claimed. **The EIS would contribute to proof of the existence of damage**.[<44>]

4.5.7 As an instrument for evaluating the cost of restoration measures, while allowing determination of the type of reasonable measures that are feasible, the cost would be part of the overall costs of restoring the environment. The results of the EIS and a decision about restoration measures should be agreed upon by the IOPC Fund and the government of the State suffering the damage, either within the maximum level of compensation or within the context of a maximum compensation for environmental damage. In the event of disagreement, this could be settled by an expert or a panel of independent experts.

4.5.8 It would be preferable to make a distinction in the procedure for restoration:

- As for evaluation of environmental damage and the setting of reasonable measures of restoration, the EIS carried out by an independent, licensed organisation probably corresponds best to compensation granted by a fund with international status.

[<42>] See the following illustrative examples: Article 206 of the United Nations Convention on the Law of the Sea; Article 11 of the Kuwait Convention for Cooperation on the Protection of the Marine Environment from Pollution; Article 6 of the Convention on the Protection of the Marine Environment of the North-East Atlantic; Annexes IV and V of the Helsinki Convention on the Transboundary Effects of Industrial Accidents of 17 March 1992; Article 2 of the North American Agreement on Environmental Cooperation (NAAEC); and the Espoo Convention on Environmental Impact Assessment in a Transboundary Context of February 1991, which submits all oil activities to an EIS.

[<43>] This "organic" independence can be found in the United States federal legislation already mentioned, CERCLA (§107, f), 2) and the Oil Pollution Act(§1002, b), 2, A), in which an independent organisation is responsible for the evaluation and implementation of environmental restoration. On the other hand, many legal texts providing for restoration of the environment do not have elements that define the way in which restoration should be carried out. In other cases, very rare, it is the government determines the contents and details of restoration. For example, the law of the Spanish region of Castilla-La-Mancha of 31 March 1988 on soil conservation and protection of the vegetative cover provides that restoration be carried out following a programme established by the government stating all of the components of the work to be done. This is practically the case of a law of 13 March 1985 in the Italian region of Marches on protection of flora.

[<44>] This approach would be close to the spirit of the system created in the United States by the Comprehensive Environmental Response, Compensation and Liability Act. This procedure created to restore the state of the environment has three stages: (i) establishment of the existence of the damage and its cause, (ii) quantification of the damage and (iii) evaluation of the damage and interest. Where parties to the IOPC Fund agree to carry out an EIS, this would follow almost identical stages, with the caveat of giving priority to restoration whenever possible, rather than damages and interest.

Furthermore, this method would have the advantage of allowing harmonisation and equalisation of the conditions for establishing compensation for environmental damage among affected States.

- As for the concrete carrying-out of restoration the marine sector is relatively poorly placed in cases of major pollution to have the work carried out by the offending party. In addition, the purpose of the IOPC Fund is to make possible payment of compensation that will be used by the State in order to complete the restoration as documented in the EIS. Sometimes, the State, in order to limit the effects of the environmental damage, has already gone to considerable expense. It is this type of solution that is used by a number of legislations permitting the State to recover the restoration costs and other already-paid expenses.[45]

5 CONCLUSION

It is clear that any expansion of coverage for environmental damage risks conflicting with the purely economic wrongs affecting individual parties. However, the foregoing analysis has tried to show that environmental damage and its compensation correspond in large part to compensation for collective assets. In addition, if the international community, in other forums, gives an increasingly broader interpretation to the right to compensation for damage to the environment, it is preferable that under the framework of the CLC and IOPC Fund Conventions Member States ensure that compensation is reasonable but sufficient to meet this obligation now recognised internationally.

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[45] See the Australian federal law Great Barrier Reef Marine Park Act of 1975, which authorizes the Ministre for the Environment to compensate, at the expense of the author of the infraction, all damage caused through an infraction of the law (Article 61 A, added in 1988), and above all the American legislation: Federal Water Pollution Control Act, the amendments of 1978 to the Outer Continental Shelf Lands Acts and the Comprehensive Environmental Response Compensation and Liability Act of 1980.