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## CRITERIA FOR THE ADMISSIBILITY OF CLAIMS FOR COMPENSATION

### 3. ENVIRONMENTAL DAMAGE

#### Note by The International Tanker Owners Pollution Federation Limited

This paper is one of a series of three notes submitted by The International Tanker Owners Pollution Federation Limited. Whilst each note addresses, with the minimum of duplication, a specific subject area in relation to the Intersessional Working Group's mandate, many of the categories of claims are inter-related and so the notes should be considered together.

The emphasis in all three notes is on the technical issues which the Federation strongly believes should be the basis for the objective assessment of the admissibility of claims for compensation under the Civil Liability and Fund Conventions, notwithstanding that legal and other issues may influence the actual settlement decisions.

#### **1 Introduction**

1.1 There is widespread interest and concern about the environment, which has increased markedly since the original Civil Liability and Fund Conventions were negotiated in the late 1960s. This is evidenced, amongst other things, by the claims for compensation for "environmental damage" received by the IOPC Fund in recent years and by the decision in 1984 to amend the definition of Pollution Damage in the Protocols to the Civil Liability and Fund Conventions to recognise the concept of "impairment of the environment" and the compensable nature of "...costs of reasonable measures of reinstatement actually undertaken or to be undertaken."

1.2 Contrary to this development of the international conventions is the increasing attention being given to the use of abstract quantification methods and theoretical models of

the type rejected by the IOPC Fund Assembly in 1980. There is also a considerable danger that the legitimate desire of the public and politicians to preserve natural resources for future generations will be prejudiced by extremist special interest groups and by media-led emotion and outrage. There is an unfortunate tendency for such groups to pronounce each major oil spill an "environmental disaster", long before there has been a realistic technical and scientific appraisal of the facts.

1.3 There is also a presumption that everything has a price and that money can always compensate for the "damage". In truth, the natural recovery of an area which has been affected by an oil spill is frequently rapid, and man is rarely able to do more than help speed up the process through judicious clean-up and restoration. It follows, therefore, that in practice there is a limit to the extent that compensation can be properly used to the direct benefit of a "damaged" environment.

1.4 This paper explains the complexity of the marine environment and addresses the consequent difficulty of establishing what constitutes "damage"; confirms the continuing inappropriateness of abstract quantification techniques and theoretical models; and explores the practicality of environmental restoration, as envisaged by the revised definition of Pollution Damage in the Protocols to the Civil Liability and Fund Conventions.

## **2 The nature of environmental "damage"**

2.1 The marine environment, in common with the rest of the natural world, is not static but is in a state of dynamic equilibrium. Fluctuations in the numbers and types of plants and animals in any given area are a routine occurrence as a result of purely natural factors, such as climatic and hydrographic changes. Some of the resulting biological changes will be subtle and may, for example, be seasonal, whereas other changes will be dramatic with some species suffering drastic decline, some flourishing and others new to the area appearing.

2.2 Man's activities can also bring about significant changes in the numbers and types of plants and animals occurring in an area. In this regard it should be recognised that traditional pursuits such as commercial fishing and harvesting of shellfish frequently cause a greater impact than oil pollution. An example of this is the effect of intensive fishing of sand eels in northern UK waters. Sand eels are the staple food of seabirds like puffins which have suffered poor breeding success in recent years, largely it is thought as a consequence of a shortage of sand eels.

2.3 The impact of oil spills has been extensively researched for over two decades and the short-term effects on both individual species and communities are generally well-known and predictable. Concerns are often raised, however, about possible long-term population effects, for example, due to the oil adversely affecting a species' ability to breed successfully. Distinguishing between any such subtle oil spill-induced changes and natural fluctuations will always be very difficult, even when there is a clearly-defined 'normal' baseline to provide a basis for comparison after a specific event. Such baseline studies are necessarily long-term and consequently it is only possible to conduct them in a few locations. Even then there can never be certainty that all the appropriate parameters will have been measured when an event actually occurs.

2.4 In these circumstances the assessed natural resource "damage" following a major oil spill can be highly speculative, and often based on a presumption that some long-term effects must have occurred rather than on scientific fact. There is also a considerable potential in such cases for wrongly interpreting any observed changes as being due to the particular event under investigation, when a broader study may reveal that the changes were primarily caused by natural factors or by other activities of man which had previously gone unnoticed or unrecorded.

2.5 The ability of individual plant and animal species to recover from a short-term adverse change in their physical or chemical environment also varies considerably. Many marine organisms produce vast numbers of eggs and larvae which are widely distributed in the sea by currents. This is a strategy to overcome high rates of natural mortality, which in the case of some marine species can result in only a few of the thousands or millions of eggs released into the sea by each female surviving to become adults. This natural over-production strategy ensures that there is a considerable reservoir for the colonisation of new areas and the replacement of any adults which have been killed as a result of short-term unfavourable conditions. Anyone who moors a boat in coastal waters will be familiar with the speed with which barnacles and other marine fouling organisms settle on the hull and other surfaces, especially once the potency of the anti-fouling has declined.

2.6 On the other hand, species which are long-lived, slow to breed and which produce few offspring may take many years to recover from the effects of an adverse change in their environment, even though they too may have in-built compensatory mechanisms (e.g. some species of seabirds have been shown to mature earlier and to have extra broods after a period of population decline). As with short-lived species, migration of adults and juveniles from neighbouring areas which have escaped the unfavourable conditions frequently enhance the recovery process, as has again been demonstrated in the case of North Sea bird populations which have suffered dramatic mortalities caused by severe weather conditions. In rare circumstances, populations of long-lived species may never be able to recover from the impact caused by short-term unfavourable conditions, especially if, for example, they are at the edge of their geographical range or if there are other adverse circumstances applying (e.g. a shortage of food or a change in the physical nature of their habitat).

2.7 In the light of the above it will be apparent that recovery of a biological community, in the context of getting back to 'normal' after an oil spill, will vary depending upon the response of the resident populations of individual species. It will also depend upon the circumstances of the actual spill, including the amount and type of oil, the physical characteristics of the area; and the season/time of the year. Whilst there are no universally accepted criteria for the assessment of environmental recovery, a widely-accepted definition is that "recovery is marked by the re-establishment of a healthy biological community in which the plants and animals characteristic of that community are present and are functioning normally." This definition recognises that the re-established community may not have exactly the same species composition or age structure as that which was present before the spill, and that it will be impossible to state with certainty that it is the same as, or different from, that which would have persisted in the absence of the spill because of the natural fluctuations described earlier.

2.8 Given the complexity of the marine environment it follows that any attempt to define in simple terms what constitutes "environmental damage" will inevitably be inadequate.

Reference to "injury", "harm", "loss" or "impairment", is largely meaningless unless these terms are themselves clearly defined. As a minimum it would have to be ascertained beyond reasonable doubt that the witnessed change in the particular species or populations that comprise a community was truly due to the event or activity under scrutiny. It would also be necessary to establish criteria to determine when a change was adverse (i.e. "harmful").

2.9 It also needs to be recognised that all users of the marine environment (including tourists and fishermen) have an impact on natural resources. If "injury", "harm", "loss" and "impairment" caused by oil spills is to be considered as "damage", then logically so too should similar impacts caused by *all* users of the marine environment.

2.10 The marine environment is highly resilient to short-term changes, and numerous studies have demonstrated that a major oil spill will not cause *permanent* effects, except in truly exceptional circumstances. Any system which seeks to quantify the value of environmental "damage" in order to seek financial recompense from the spiller should therefore recognise the transient nature of the effects, and the fact that the environment will repair itself given a certain period of time.

### **3 The valuation of environmental "damage"**

3.1 It is not disputed that the marine environment has a value to society beyond that which it confers on those who depend upon it for their livelihood. The most straightforward example is those who use coastal waters for amenity purposes (e.g. sports fishermen, yachtsmen and scuba divers). An oil spill generally only interferes with such amenity use of coastal waters for a short period, until clean conditions are restored. It is therefore rare that any remedial measures have to be taken, other than appropriate clean-up. As a consequence, the provision of an alternative amenity would, in most cases, neither be practicable nor justified because of the transient nature of the problem.

3.2 The marine environment is regarded by many as having equally important "non-use" values. This school of thought often sub-divides these "non-use" values into "option", "existence" and "bequest" values, which respectively equate to the desire of society to preserve the option to use a natural resource in the future ("option"), to know that it simply exists ("existence") or to know that it will be available to future generations ("bequest").

3.3 Many people consider that the environment is priceless in every sense of the word, and that attempts to place an economic value on "non-use" benefits has no relevance. This view has been brushed aside by those who may have an equal concern for the preservation of environmental resources but who argue that society expects full compensation for all losses resulting from an oil spill. Those holding this latter view have historically attempted to develop methodologies to determine the "non-use" value of the environment or components of it. One of the most controversial approaches currently being advocated in some jurisdictions is Contingent Valuation Methodology, which involves public surveys to determine respondents' theoretical (but not actual) "willingness-to-pay" to prevent pollution of specified natural resources, or to bring about improvements in them.

3.4 Given that the natural resources involved in environmental valuation exercises are not commercially exploited and do not therefore have a market value, it follows that all of the

methods which have been developed are highly theoretical and speculative, and give inconsistent and arbitrary results. Concerns about the artificiality of such assessment methods, the enormous claims that could result, and the fact that any money paid could not be regarded as compensation in the established sense, led the Assembly of the IOPC Fund in October, 1980 to pass a Resolution affirming that:

"the assessment of compensation to be paid by the International Oil Pollution Compensation Fund is not to be made on the basis of an abstract quantification of damage calculated in accordance with theoretical models."

There appears to be no reason why this conclusion does not remain valid today.

3.5 The Diplomatic Conference convened in 1984 to develop Protocols to both the Civil Liability and Fund Conventions discussed the issue of environmental damage at some length. The result was the decision to revise the definition of Pollution Damage in both Protocols to include "...compensation for impairment of the environment..." but "...limited to costs of reasonable measures of reinstatement actually undertaken or to be undertaken."

3.6 Whilst the revised definition of Pollution Damage in the Protocols is generally regarded as a helpful clarification and a codification of the position previously taken by the IOPC Fund Assembly in respect of abstract damages based on theoretical models, some problems remain. First, as will be clear from the earlier paragraphs on the complexity of the marine environment, man does not possess the ability to "reinststate" a "damaged" environment to its pre-spill condition. Recovery will normally occur rapidly through natural processes, and the best that man can usually do is to undertake restoration measures which will assist, or at least not impede, the natural processes. The appropriateness of the term "reinstatement" is therefore questioned, as is any presumption that it will either be necessary or in the best interests of the environment to implement restoration measures following every oil spill.

3.7 The second area of potential difficulty in respect of the revised definition results from the inclusion of the words "to be undertaken" since this raises the issue of what proof will be required prior to the payment of compensation that the measures will indeed be carried out, and that the funds received will be not diverted to other, unrelated projects.

#### **4 The practicality of restoring "damaged" environments**

4.1 The first stage of environmental restoration is clean-up. In most cases this will be directed at removing oil from the affected area so that it is returned, as near as possible, to its pre-spill condition, consistent with the clean-up measures themselves not causing further environmental "damage". Once the clean-up phase has been completed, other positive steps to encourage natural recovery might logically follow. An example of such an approach which may be justified in some cases following an oil spill would be to replant a salt marsh after the bulk oil contamination had been removed. In this way erosion of the area might be prevented and other forms of biological life encouraged to return quicker than they would do otherwise.

4.2 In cases where it is not possible to repair the oil spill affected site it may be feasible to take steps to prevent further degradation and, at the same time, to promote natural recovery. For example, it may not be practicable to replant an area with the same species of plants which were killed, but the planting of an alternative, quick growing species or the construction of artificial protective structures may at least minimise erosion and thereby ensure that the physical characteristics of the area remain suitable for eventual natural recolonisation by the plants and animals which were there prior to the spill.

4.3 Whilst it is frequently possible to help restore vegetation and physical structures, animals are generally a far more difficult problem. It may in some circumstances be possible to improve the reproductive success of a species, and thereby the recovery of an affected population, by providing a temporary, artificial habitat until their normal habitat was itself restored. In some instances there may be justification for affording special protected status to an area on the border of the oil spill affected zone so that its inhabitants are encouraged to flourish, thereby providing a reservoir for the replacement of individuals killed by the spill. As an example, it may be feasible to encourage a greater natural survival of juvenile turtles or birds in nearby areas which are unaffected by an oil spill by minimising predator impact or by preventing human interference. However, before any such programme was implemented there would have to be sound scientific grounds for believing that the measure would successfully enhance the natural recovery of the "damaged" area or species known to be at risk. Equally, it would be pointless if the restorative measures were to the detriment of other parts of the environment. The protection of an alternative area or the provision of an alternative amenity unrelated to the "damaged" natural resource would not be "reasonable" if, for example, it was done merely to satisfy public demands, since the expenditure would not be for "reinstatement" of the "impaired environment", as envisaged by the revised definition of Pollution Damage in the Protocols. Equally, there would be no justification for maintaining the special protected status of an alternative area once the affected area or species had recovered.

4.4 It may, in rare cases, be justifiable to carry out an artificial breeding and release programme if the survivability of a distinct population is known to be at risk, if it is technically feasible and the likelihood of a successful enhancement of the wild population is high. Unfortunately, the species which can be manipulated in this way may not be those that determine the overall health of a particular community, and there is a danger that effort would be concentrated on the "furry and feathery" inhabitants in response to public and political pressures. Before any such programme was implemented, therefore, it would have to be shown that there was a high probability that the action would promote the natural recovery of the "damaged" area and not just an individual species, unless it was known that the oil spill had endangered a distinct population of that species. Any restoration programme that was purely experimental would also not be considered "reasonable".

4.5 There will always be significant limits to the extent to which man can repair "damage" which he has caused. It also follows that attempts to meticulously reinstate a "damaged" area will, in most cases, both be impossible and unreasonable, especially if natural recovery is likely to be rapid. In addition, it must be appreciated that excessive intervention by man, for example, by trying to remove every last drop of a pollutant or by trying to 'engineer' the environment, can often itself be destructive and hinder natural recovery. The appropriate clean-up and restoration measures will always depend upon the environment in question and

the nature and extent of the impact. This cannot be legislated for and requires clear but flexible criteria to be established that can be interpreted in an objective manner by experts.

4.6 In some instances, post-spill studies may be required if there is difficulty in establishing the precise nature and extent of the "damage" caused by an oil spill, and/or the need for restoration measures, given the potential for natural recovery. Such studies, when appropriate, may form part of the compensation 'package', but care will always need to be taken to ensure that their scale is not out of all proportion to the extent of the contamination and the probable effects. Equally, it will be important to ensure that the studies are practical rather than esoteric, and that they are likely to deliver the required data.

4.7 The question of whether a particular restoration programme should be considered "reasonable" is clearly critical since the temptation to carry out unrealistic programmes to test academic theories will be always great. Criteria should therefore be established against which proposed restoration programmes in response to *proven* environmental "damage" caused by an oil spill can be assessed. It is suggested that the fundamental criteria should be that:

- (i) the restoration measures are beneficial, given the potential for natural recovery;
- (ii) the proposed programme is technically feasible;
- (iii) the measures are likely to be successful in significantly accelerating the natural recovery of the "damaged" community or the population of a species known to be at risk;
- (iv) the programme will not itself result in the degradation of other environments or adverse consequences for other natural resources; and,
- (v) the cost of the proposed programme is not out of all proportion to the extent and duration of the "damage".

Unless positive evidence can be provided on all these counts the programme should be considered "unreasonable".

4.8 With regard to the last of the above-mentioned criteria, the extent to which the cost of a proposed restoration programme that satisfies the remaining criteria should be a factor in determining its "reasonableness" is a matter for debate. Cost certainly cannot be ignored, since there is a finite amount of compensation available under the Civil Liability and Fund Conventions, and if the total of established claims exceeds the maximum available, all claims have to be prorated. The situation could arise, therefore, that a very expensive restoration programme would be to the direct detriment of other claimants who had incurred costs or suffered economic loss and who would only receive a proportion of their valid claim in the proration exercise. Since restoration programmes, including related studies, are also potentially long-term activities, special financial arrangements may be necessary to avoid other claimants experiencing consequential delays in receiving their full or partial settlements. The solution to the cost problem may well lie in the strict application of the technical criteria outlined above, since problems are most likely to arise with speculative, unrealistic programmes, and attempts to employ previously untried restoration techniques in the many situations where natural recovery cannot be significantly improved upon.

## 5 Conclusions

5.1 The Civil Liability and Fund Conventions were originally devised to ensure that claimants who were damaged by an oil spill were left no worse off economically than had the event not occurred. There is a risk that attempts to stretch the highly effective system of strict liability compensation, that has been in place for some twenty years, to include large-scale environmental "damages" unrelated to real-world economics will bring about its disintegration.

5.2 In reality, the sums sought for environmental "damage" as a result of abstract calculations and theoretical models are normally more akin to penalties rather than compensation, where the level of the claim is all too often related to the desire to punish or to seek financial gain, rather than to obtain money to be used to the benefit of the "damaged" environment. Under the Civil Liability and Fund Conventions compensation is assessed regardless of the degree of fault, if any, of the tanker owner. To assess a penalty on the same basis would be inequitable.

5.3 The marine environment is highly resistant to short-term changes, and numerous studies have demonstrated that a major oil spill will not cause *permanent* "damage", except in truly exceptional circumstances. Nevertheless, the concept of "reinstatement" of "impaired environments", as envisaged by the revised definition of Pollution Damage in the Protocols, is a constructive approach to a problem which might otherwise become highly divisive, as well as being contrary to the interests of those who have suffered real economic loss. It needs to be appreciated, however, that the potential for natural recovery is great and that man is severely limited in the extent to which he can take restoration measures which will improve upon the natural processes. It therefore needs to be appreciated that it will neither be necessary, nor in the best interests of the marine environment to implement restoration measures following every oil spill.

5.4 In the light of the above, the acceptance and implementation of a proposed restoration programme following an oil spill should be subject to a number of strictly-applied criteria. In particular, it should be established beyond reasonable doubt that:

- the "damage" was caused by the oil spill and that restoration measures would be beneficial, given the potential for natural recovery;
- the programme would be technically feasible;
- the measures would be successful in significantly accelerating the natural recovery of the "damaged" community or the population of a species known to be at risk;
- it would not result in the degradation of other environments or adverse consequences for other natural resources; and,
- the cost would not be out of all proportion to the extent and duration of the "damage".

Any proposed programme which failed to meet *all* of the above criteria should be considered "unreasonable".

5.5 The concept of environmental restoration needs further development and innovative thinking so as to assure the public and politicians that it provides the only rational approach to the problem of compensating for environmental "damage" caused by oil spills. It also

must be made clear that the alternative, punitive approach based on abstract calculations and theoretical models is not only unlikely to benefit "damaged" environments but is likely, in addition, to impose excessive financial stress on a successful compensation system, to the direct disadvantage of genuine claimants who might, as a result, only receive partial settlement of their legitimate claims many years after the event.

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