Deliberations on Compensation and Remediation of Nuclear Damage to the Environment

by Norbert Pelzer[*]

At its meeting held on 17 and 18 November 2009,[1] the OECD NEA's Nuclear Law Committee (NLC) discussed the issue of obtaining financial security to cover liability for environmental damage. The experts from the insurance industry observed that the liability for environmental damage under the "2004 Paris Convention on Third Party Liability in the Field of Nuclear Energy" (2004 Paris Convention)[2] may differ from the liability established under the "Directive 2004/35/EC of

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1. OECD Doc. NEA/SEN/NLC(2010)1. The relevant paragraphs 24, 25 read as follows:

> "24. On the issue of obtaining financial security to cover liability for environmental damage, the experts from the **nuclear insurance industry** observed that liability for environmental damage under the 2004 Protocol may be different from that under the 2004 EU Environmental Liability Directive. Except for damage to land, liability under the EU Directive requires an operator to bring the environment back to its baseline condition, meaning its state before damage has occurred ("primary remediation"). Should primary remediation not be possible, the operator must look for alternative reinstatement ("complementary remediation") such as, for example, replacing a contaminated forest by a new forest on a different site. Liability under the EU Directive may also require an operator to compensate for the loss of "service" of the environment ("compensatory remediation") until primary or secondary remediation has been accomplished such as, for example, providing accommodation for animals that have lost their natural habitat.
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> 25. Insurers are concerned that the notion of compensatory remediation is too vague and unquantifiable. For example, how long does it take to grow trees as high as they were prior to damage? When do animals again start feeling at home in the forest? When do trees start purifying the air at the same level as they did prior to damage? The insurers' understanding is that a nuclear operator may not be held liable for the costs of compensatory remediation under the 2004 Protocol and the representative from **Germany** agreed to verify this issue. The insurers added that insurance capacity for various new heads of damage under the 2004 Protocols is slowly becoming available, except for environmental damage and extended prescription periods, with amounts varying according to the size of the insurance provider."

2. Unofficial consolidated text of the 1960 Paris Convention and the 2004 Protocol to Amend the Paris. Convention reproduced at: www.nea.fr/law/Unofficial%20consolidated%20Paris%20Convention.pdf.

the European Parliament and of the Council of 21 April 2004 on environmental liability with regard to the prevention and remedying of environmental damage" (hereinafter referred to as "directive").[3]

This discussion put into focus the question whether the term "liability" of the operator under the 2004 Paris Convention and under the directive covers identical concepts of "compensation". It is true that the directive, according to its Article 4(4), excludes nuclear risks or environmental damage or the imminent threat of such damage originating from defined nuclear activities from its scope of application. However, it reserves the right to amend that exclusion by 2014 [Article 18(2) and (3)(a)]. Irrespective of this legal situation, there exists an understandable interest of the insurance industry and of other stakeholders as well to get clarification on which type of obligation the operator has to meet under both instruments, or in other words: which liability and coverage consequences does damage to the environment entail for the operator?

1. The concept of damage under the 2004 Paris Convention

Under the 2004 Paris Convention, "the operator of a nuclear installation shall be liable, in accordance with this Convention, for nuclear damage" [Article 3(a)]. To cover this liability, the operator is required to have and to maintain insurance or other financial security [Article 10(a)]. The concept of compensable nuclear damage is defined in Article I(a)(vii) and reads as follows:

> *"vii*) 'Nuclear damage' means,
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> 1. loss of life or personal injury;
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> 2. loss of or damage to property;
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> and each of the following to the extent determined by the law of the competent court,
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> 3. economic loss arising from loss or damage referred to in sub-paragraph *1* or *2* above insofar as not included in those sub-paragraphs, if incurred by a person entitled to claim in respect of such loss or damage;
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> 4. the costs of measures of reinstatement of impaired environment, unless such impairment is insignificant, if such measures are actually taken or to be taken, and insofar as not included in sub-paragraph *2* above;
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> 5. loss of income deriving from a direct economic interest in any use or enjoyment of the environment, incurred as a result of a significant impairment of that environment, and insofar as not included in sub-paragraph 2 above;
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> 6. the costs of preventive measures, and further loss or damage caused by such measures,
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> in the case of sub-paragraphs 1 to 5 above, to the extent that the loss or damage arises out of or results from ionising radiation emitted by any source of radiation inside a nuclear installation, or emitted from nuclear fuel or radioactive products or waste in, or of nuclear substances coming from, originating in, or sent to, a nuclear installation, whether so arising from the radioactive properties of such matter, or from a combination of radioactive properties with toxic, explosive or other hazardous properties of such matter."

3. EU O.J. 2004 No. L 143 p. 56.

2. The concept of damage under the directive

According to its Article 3(1), the directive shall apply to "any environmental damage caused by any of the occupational activities listed in Annex III", to "damage to protected species and natural habitats caused by any occupational activities other than those listed in Annex III" and to "any imminent threat of such damage." The concepts of "environmental damage", of "damage" and of "imminent threat" are defined in Article 2 Nos. 1, 2, 9. The directive requires the operator to take the necessary preventive measures if environmental damage has not yet occurred (Article 5), and if such damage has occurred, to take the necessary "remedial measures" (Articles 6, 7). The competent authority shall decide which remedial measures shall be implemented in accordance with Annex II (Article 7 paragraph 2). Member states shall take measures to encourage the development of financial security instruments with a view to enabling operators to use such financial security to cover their responsibilities under the directive [Article 14(1)].

Annex II defines remediation as follows:

"1. Remediation of damage to water or protected species or natural habitats

Remedying of environmental damage, in relation to water or protected species or natural habitats, is achieved through the restoration of the environment to its baseline condition by way of primary, complementary and compensatory remediation, where:

(a) 'Primary' remediation is any remedial measure which returns the damaged natural resources and/or impaired services to, or towards, baseline condition;

(b) 'Complementary' remediation is any remedial measure taken in relation to natural resources and/or services to compensate for the fact that primary remediation does not result in fully restoring the damaged natural resources and/or services;

(c) 'Compensatory' remediation is any action taken to compensate for interim losses of natural resources and/or services that occur from the date of damage occurring until primary remediation has achieved its full effect;

(d) 'Interim losses' means losses which result from the fact that the damaged natural resources and/or services are not able to perform their ecological functions or provide services to other natural resources or to the public until the primary or complementary measures have taken effect. It does not consist of financial compensation to members of the public.

Where primary remediation does not result in the restoration of the environment to its baseline condition, then complementary remediation will be undertaken. In addition, compensatory remediation will be undertaken to compensate for the interim losses.

Remedying of environmental damage, in terms of damage to water or protected species or natural habitats, also implies that any significant risk of human health being adversely affected be removed.

[...]

2. Remediation of land damage

> The necessary measures shall be taken to ensure, as a minimum, that the relevant contaminants are removed, controlled, contained or diminished so that the contaminated land, taking account of its current use or approved future use at the time of the damage, no longer poses any significant risk of adversely affecting human health. The presence of such risks shall be assessed through risk assessment procedures taking into account the characteristic and function of the soil, the type and concentration of the harmful substances, preparations, organisms or micro-organisms, their risk and the possibility of their dispersion. Use shall be ascertained on the basis of the land use regulations, or other relevant regulations, in force, if any, when the damage occurred.
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> If the use of the land is changed, all necessary measures shall be taken to prevent any adverse effects on human health.
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> If land use regulations, or other relevant regulations, are lacking, the nature of the relevant area where the damage occurred, taking into account its expected development, shall determine the use of the specific area.
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> A natural recovery option, that is to say an option in which no direct human intervention in the recovery process would be taken, shall be considered."

3. Objectives and elements of the 2004 Paris Convention and of the directive

The insurers are concerned that the concept of compensatory remediation, in particular as defined in Annex II No. 1(c) of the directive, is "too vague and unquantifiable" which would entail that such risk is difficult, if not impossible, to insure. The same difficulties would arise regarding environmental damage under the 2004 Paris Convention if both instruments aim at compensation of identical nature, form and extent.

The 2004 Paris Convention and the directive pursue different purposes and thus do not necessarily contain identical concepts and forms of damage to be recovered.

3.1. The 2004 Paris Convention

The 2004 Paris Convention aims at "ensuring adequate and equitable compensation for persons who suffer damage caused by a nuclear incident" (Recital 3 of the Preamble) and holds the operator liable to compensate nuclear damage suffered. The convention provides for a third party civil liability regime. It is part of private non-contractual liability law (tort law). That means the convention establishes and regulates the relationship between a tortfeasor and the victim who is a person who suffers damage through an act or omission of the tortfeasor. The latter has to compensate that damage. He is bound to pay a debt. Civil non-contractual liability law is, as a rule, determined by a bilateral relationship between two individual persons. Interests of the general public are, in principle, not involved.

3.2. The directive

The purpose of the directive is defined in its Article 1 as follows:

> "The purpose of this Directive is to establish a framework of environmental liability based on the 'polluter-pays' principle, to prevent and remedy environmental damage."

The use of the term "environmental liability" ("*responsabilité environnementale*", "*Umwelthaftung*", "*responsabilidad medio ambiential*", "*milieuaansprakelijkheid*", "*miljöansvar*", "*responsabilità ambientale*", "*miljøansvar*") suggests overlap of and identity with the liability under the 2004 Paris Convention if nuclear damage were included in the scope of application of the directive. The express reference to the "polluter-pays" principle seems to support such interpretation. On the other hand, the directive's liability is designed to "prevent and remedy" environmental damage. Prevention and remediation are equally ranked objectives of the directive. Pursuant to Article 6(1) of the directive, the operator has to take "the necessary remedial measures". This purpose and its implementation do not exactly correspond with the concept of civil liability as outlined above. It is rather an argument in favour of qualifying the directive as an instrument designed to protect the environment in a comprehensive way beyond the mere compensation of individual environmental damage. There is no "debt" to be paid by the operator to a victim. Hence, the "liability" under the directive appears to be of a hybrid nature. It should more correctly be called "responsibility" ("*Verantwortlichkeit*")[4] of the operator to prevent damage to the environment and to reinstate damaged environment.

3.3. Elements of the directive

The operator's liability/responsibility under the directive is marked by features other than those which define the operator's liability under the 2004 Paris Convention.

Pursuant to the directive, the operator [definition: Article 2(6)] shall prevent and remedy environmental damage. Environmental damage is defined in Article 2(1) of the directive. It exclusively encompasses damage to assets which cannot be attributed to an individual physical or legal person. The environment as defined by the directive is in nobody's property ownership but is common to all. The operator's responsibility exists *vis-à-vis* the general public which is represented by the "competent authority" to be designated in accordance with Article 11 of the directive. The operator shall, in the case of an imminent threat of environmental damage, take preventive measures without delay. The authority has a right of information, it may require the operator to take preventive measures, and it may instruct him (Article 5). In case damage has occurred, the operator has to inform the authority (Article 6). The authority decides which remedial measures shall be implemented (Article 7). The operator has to bear the costs of preventive and remedial measures (Article 8). It follows from these provisions that the relationship between the polluter, i.e. the operator, and the person entitled to request preventive measures or remediation, i.e. the competent authority, is governed by the principle of subordination. In short, the directive imposes a public duty on the operator, and it is a public law rather than a private law instrument.

3.4. Elements of the 2004 Paris Convention

The 2004 Paris Convention is governed by another approach. As pointed out above, the convention establishes an obligation on the operator of a nuclear installation to compensate nuclear damage suffered by a person under the terms of private law. Claimant and defendant meet at the same level. Under private law there is no subordination.

4. In the French language there are no different words for the concepts: both liability and responsibility are covered by "*responsabilité*". Other EU official languages may have a similar approach. Perhaps the directive was originally drafted in French, and the use of the term "liability" and its corresponding terms in other official languages is simply due to an error of translation. It has to be noted that the term "responsibilities" is used in the English version of Article 14(1).

Damage suffered and claims raised are related to individually attributed rights. It is not the environment as a common asset of the general public which shall be protected by the convention but the rights of individual victims. This will be evidenced by a closer look at the heads of damage listed in Article 1(a)(vii) of the 2004 Paris Convention.

Two of the heads of damage explicitly address environmental damage, namely Numbers 4 and 5. The compensable damage is, unlike that provided for in the directive, not damage to the environment as such. The actually incurred costs of measures of reinstatement of a considerably impaired environment shall be reimbursed to the person who undertook the reinstatement (Number 4). Loss of income of a person deriving from that person's direct economic interest in the use or enjoyment of the environment following a significant impairment of the environment shall be compensated (Number 5). However, both heads of damage only apply if such damage is not already covered by damage to property under Number 2 of the sub-paragraph. Furthermore, measures to prevent economic losses as a result of damage to the environment are covered (Number 6 of the sub-paragraph).

The proviso that the two heads of damage only apply if they are not covered as damage consequential to damage to property reduces the scope of application of these heads of damage most considerably. Since nearly all land areas including internal waters are in property ownership of either a state or of individual physical or legal persons, a major if not the greatest part of the environment is part of personal property, such as forests, fields and lakes. Nuclear damage occurring to these parts of the environment is quantifiable damage to property. Only if those parts of the environment which do not belong to a person and which are common to the general public are damaged, the heads of damage numbers 4 and 5 are applicable.

3.5. Interim summary

The regime of the 2004 Paris Convention compensates the individual consequences of damage to the environment by means of private liability law, while the directive protects against, and compensates, damage to the common asset environment by means of establishing public duties of the polluter.

4. Extent and form of compensation

Do these different approaches entail a different extent and different forms of compensation, too, or are the legal consequences of both regimes identical? More precisely, can prevention and remediation, in particular compensatory remediation, as required under the directive also be required under the 2004 Paris Convention?

The compensation of damage aims at the restoration of the condition which would have existed without the tortuous act (*restitutio in integrum*). This goal seems to be common to both the 2004 Paris Convention and the directive. In the directive it is reflected in terms like "restoration of the environment to its baseline condition" [Annex II(1), Article 2 No. 14]. Nevertheless, there is a major difference. As was pointed out above, the directive is designed to restore the environment in the interest of the general public "to its baseline condition" which is the baseline condition for the entire general public concerned, and consequently, requires comprehensive restoration of the damaged environment. The 2004 Paris Convention is meant, as also already explained above, to compensate the individual economic loss which a certain person suffers. The convention does not establish a claim or an obligation to remediate and restore the environment but to compensate and reimburse the costs of reinstatement, if any, and to compensate economic loss consequential to the impairment of the environment. In the event of a major nuclear incident with many victims, the differences between individual damage and damage to the general public will, of course, fade away.

In order to implement these objectives, the directive and the 2004 Paris Convention deploy different tools. The directive provides for an elaborate legal framework determining the public duties of the operator in great detail. The measures necessary to actually prevent damage or to actually restore damaged environment are listed and made binding upon the operator who acts under the supervision of the competent authority. The object of these preventive and compensatory measures is the general environment that is common to everyone. The competent authority decides which remedial measures shall be taken, and certain natural and legal persons have a right to request relevant action (Articles 7, 12). The costs of the measures shall be borne by the operator (Article 8).

The 2004 Paris Convention, as tort law regime, provides for direct compensation of the individual victim in terms of money. But most national laws also allow for the option of compensating in kind (*restitutio naturalis*). A well known example of the latter type of compensation is Section 249 of the German *Bürgerliches Gesetzbuch* – BGB (Civil Code).[5] Compensation means reinstatement of the economic situation which existed prior to the nuclear incident. The economic *status quo ante* may, as the case may be, be reinstalled better or less expensively through compensation in kind. If, for example, a hotel at the beach looses clients and suffers economic loss because of contamination of the sand at the beach, the operator may, instead of paying money to the owner of the hotel with a view to enabling him to replace the contaminated sand, replace the sand himself.

5. Further elements of defining the compensable damage under the convention

5.1. Loss of income under Article 1(a)(vii) No. 5 of the 2004 Paris Convention

The replacement of sand in the example of the hotel at the beach would indeed qualify for a "primary" or at least "compensatory remediation" if the directive were applicable. Yet here again the "individualisation" of the damage marks the decisive difference between the regimes of the 2004 Paris Convention and of the directive. Under the directive "environmental damage", in the broad sense of the definition in Article 2(1), has to be restored. The "remediation" under the 2004 Paris Convention obliges the operator of a nuclear installation, for example, to compensate the victim for the economic loss of the hotel, which means only for replacing the sand at that part of the beach which the clients of the hotel use. There is no obligation *vis-à-vis* the hotel owner to reinstate the entire beach; however, such an obligation may, as a new obligation, exist *vis-à-vis* the owner of the beach.

The language of Article 1(a)(vii) No. 5 of the 2004 Paris Convention supports this interpretation: if there is no individual economic loss, there will be no compensation under the convention irrespective of the extent of damage to the environment. If a beach is contaminated and there is no hotel or any other person suffering an economic loss therefrom, there is no claim for compensation under the 2004 Paris Convention. Where there is no claimant, there is no judge. On the other hand, under the directive there will always be a duty to remedy environmental damage. The directive aims at remediation of the impaired environment independent of any individual economic loss originating from the impairment.

Hence, the extent of damage to be compensated under this head of damage will be determined by the economic loss suffered by an individual victim and thus is clearly quantifiable and calculable.

5. Unofficial translation of the provision: "Nature and extent of damages (1) A person liable must restore the state that would exist if the circumstance obliging him to pay damages had not occurred. (2) Where liability is established for the injury of a person or damage to property, the victim may demand the required monetary amount *in lieu* of restoration. In case of property damage, the monetary amount required under sentence 1 only includes value-added tax if and to the extent that it is actually incurred".

5.2. Costs of measures of reinstatement under Article 1(a)(vii) No. 4 of the 2004 Paris Convention

The compensation of the actually incurred costs of measures of reinstatement of the environment, in principle, follows the same pattern. The person who actually takes measures of reinstatement shall be compensated for the costs of such measures. This damage is quantifiable too, provided the definition of "measures of reinstatement" gives guidance regarding the activity for which the operator has to compensate. Article 1(a)(viii) of the 2004 Paris Convention defines measures of reinstatement as follows:

> "'Measures of reinstatement' means any reasonable measures which have been approved by the competent authorities of the State where the measures were taken, and which aim to reinstate or restore damaged or destroyed components of the environment, or to introduce, where reasonable, the equivalent of these components into the environment. The legislation of the State where the nuclear damage is suffered shall determine who is entitled to take such measures."

This definition uses general language and thus embraces a far reaching concept of remediation. It needs interpretation and invites a comparative look at the definition of remediation in Annex II of the directive. Such comparison might very well suggest that the "measures of reinstatement" under the convention in substance mean the same as the remediation under the directive. The concern of the insurers that the risk to be covered, and in particular the notion of compensatory remediation, are too vague and unquantifiable, seems to be confirmed.

It is true that the broad definition of measures of reinstatement seems to approximate the liability instrument to the directive. The approach of individualised damage compensation appears to be replaced by the concept of comprehensive remediation of the impaired environment. Such a result, however, would not comply with the concept of civil third party liability as a bilateral relationship of the tortfeasor and the victim. It would transform liability into public responsibility. This was surely not the intent of the drafters of the 2004 Protocol to Amend the Paris Convention. A proper interpretation of the concept therefore has to take into consideration the entire context of the provision and especially the qualifiers of the elements of the definition. The convention contains further elements to support defining and reasonably restricting the notion of compensable nuclear damage to the environment.

Both the convention and the directive, of course, require a causal link between the damaging occurrence attributable to a certain operator and the damage caused to the environment. The onus of proof for the causal link lies with the person requesting compensation of the costs of reinstatement. These are basics for filing a claim. It likewise has to be taken into account that the heads of damage enumerated in Article 1(a)(vii) Nos. 3 to 6 of the 2004 Paris Convention are governed by a chapeau sentence which provides that each of the following heads of damage only apply "to the extent determined by the law of the competent court". This provision grants discretion to the law of the court to further define the compensable damage. More specific is the requirement that reinstatement costs are only compensable if the impairment of the environment is not insignificant. The measures have to be "reasonable". That qualifier is defined as follows [Article 1(a)(x) of the 2004 Paris Convention]:

> "'Reasonable measures' means measures which are found under the law of the competent court to be appropriate and proportionate, having regard to all the circumstances, for example:
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> 1. the nature and extent of the nuclear damage incurred or, in the case of preventive measures, the nature and extent of the risk of such damage;
>
> 2. the extent to which, at the time they are taken, such measures are likely to be effective; and
>
> 3. relevant scientific and technical expertise."

The concept grants the judge broad discretion to decide whether, and to what extent, the measures of reinstatement taken are reasonable and their costs are to be compensated. The provision at the same time provides the judge with a yardstick for his decision. The qualifiers "appropriate and proportionate" play a decisive role. Appropriateness and proportionality of the measures of reinstatement have to be considered not only with respect to the aspects referred to in the definition but also with respect to all other relevant aspects including the aspect that compensation is claimed under a civil liability regime which is distinct from comprehensive remediation under an environmental protection regime. The judge will also have to take into account that in case of a major nuclear incident the means for compensation are limited and that his ruling needs to strike a balance between claims to compensate environmental damage and other claims filed. If these qualifying elements are properly applied, the legal approach of the convention restricts the claim for compensation of the consequences of environmental damage to a reasonably determinable and quantifiable claim.

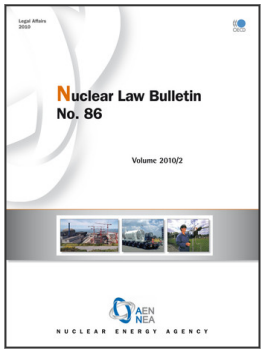
6. Summary

The concerns of the insurers that environmental damage is difficult if not impossible to insure may, to a certain extent, be justified with regard to the comprehensive concept of environmental damage as defined in the directive. Yet the directive does not apply to nuclear incidents, and it may only be used for the purpose of comparison. Nuclear incidents are covered by the 2004 Paris Convention. Regarding this convention there is, however, less reason for such concern. The environmental damage to be compensated is of another nature than that of the directive. It is clearly restricted to the individual economic losses consequential to a significant impairment of the environment. Due to that restriction the risk is quantifiable and calculable. Its financial coverage should not involve greater difficulties for the insurers and other persons providing financial security than covering other heads of damage, particularly in relation to covering the broad range of damage to property including economic losses consequential to property damage. If property damage can be insured, environmental damage, as defined in the convention, ought to be insurable, too. However, it has to be admitted that the broad concept of measures of reinstatement may cause problems of coverage if the interpretation of that notion does not reasonably limit the extent of the measures. Thus, the insurers have to face a certain degree of uncertainty.

The result of this paper is, *mutatis mutandis*, also applicable to the 1997 Vienna Convention on Civil Liability for Nuclear Damage (1997 VC)[6] and to the Convention on Supplementary Compensation for Nuclear Damage (CSC).[7] Both conventions build the liability of the operator of a nuclear installation on concepts of nuclear damage which in relation to the heads of damage discussed here are identical to those of the 2004 Paris Convention [Article I(1)(k, m, o) of the 1997 VC, Article I(f)(g)(h) of the CSC].

6. IAEA Doc. INFCIRC/566 Annex.

7. IAEA Doc. INFCIRC/567.



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