

# Emergency preparedness and response: compensating victims of a nuclear accident

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## Abstract

The 1986 tragedy at the Chernobyl Nuclear Power Plant in Ukraine motivated the entire international nuclear community to ensure that countries would, in the future, be well prepared to manage the physical, psychological and financial consequences of a serious nuclear accident. Since that event, numerous nuclear emergency preparedness and post-emergency management programmes have been established at national and international levels to ensure that appropriate mechanisms will respond to the threat, and the aftermath, of a nuclear accident. The INEX 2000 Workshop on the Indemnification of Nuclear Damage, jointly organised by the OECD/Nuclear Energy Agency and the French Government, was the first ever international programme to address the manner in which victims of a nuclear accident with trans-boundary consequences would be compensated for damage suffered before, during and after the accident. The Workshop results revealed striking differences in the compensation principles and practices implemented in the 30 participating countries, in the co-ordination measures between different public authorities within an affected state, and in the co-operative procedures between the accident state and its neighbours. All participants agreed on the need for improvement in these areas, particularly for maintaining public confidence in governments' ability to properly manage nuclear emergencies.

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## 1. Introduction

Nuclear emergency preparedness and response plans, at both national and international levels, have historically placed much emphasis on controlling and mitigating the consequences of an accident, both from within the installation and from off-site locations. Yet they rarely take account of the personal requirements of individuals who might suddenly find themselves in dire need of practical information and advice, financial, physical or psychological emergency assistance, or monetary compensation for damages suffered as a result of the accident.

In an effort to help redress this situation, the OECD/NEA and the French Government jointly organised the INEX<sup>1</sup> 2000 Workshop on the Indemnification of Nuclear Damage, the first ever forum in which mechanisms to compensate

victims of a nuclear accident were assessed as an integral part of a nuclear emergency exercise—in essence, putting nuclear liability and compensation theory into practice.

## 2. The Gravelines NPP Emergency Exercise

How did the Workshop come about? In May 2001, France offered to host a simulated “joint international nuclear emergency exercise” at its Gravelines Nuclear Power Plant<sup>2</sup> near Dunkerque in the north of France. Co-ordinated through the Inter-Agency Committee for Response to Nuclear Accidents (IACRNA),<sup>3</sup> this exercise engaged the participation of 55 countries and five international organisations, all hoping to better assess the implementation of nuclear emergency procedures in France as well as in its neighbouring countries.

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<sup>1</sup> “INEX” stands for International Nuclear Emergency Exercise, the OECD/NEA programme to improve nuclear emergency preparedness and post-emergency management on both national and international levels.

<sup>2</sup> The Gravelines NPP site comprises six pressurised water reactors (PWR) of 920 MWe.

<sup>3</sup> On this Committee are representatives of the European Commission, the International Atomic Energy Agency, the OECD/Nuclear Energy Agency, the UN Office for the Co-ordination of Humanitarian Affairs, the World Health Organisation and the World Meteorological Organisation.

Without going into a detailed description of the simulated accident,<sup>4</sup> suffice it to say that experts predicted there would be a significant release of radioactive materials in the environment and an evacuation was ordered of approximately 8000 inhabitants living downwind of the potential release, in the municipality of Dunkerque. Eventually the accident was classified as only 4 on the International Nuclear Event Scale (INES),<sup>5</sup> meaning that the accident did not result in significant off-site risks.

The OECD/NEA's participation in this emergency exercise focused mainly upon monitoring the data management strategies for nuclear emergencies, media information co-ordination between participants, and assessing the impact of "lessons learned" from earlier nuclear emergency preparedness and management exercises conducted as part of its INEX programme.

In addition, however, the OECD/NEA and the French Government decided to jointly organise an international Workshop the objective of which was to examine how each participating country would put liability and compensation theory into practice if a nuclear accident, such as that which took place at Gravelines, occurred within its territory. Such an objective is important for many reasons, not the least of which is that public authorities are not always sufficiently conscious of the needs of innocent victims, largely (and happily) because of their dearth of practical experience with nuclear accidents.

The Workshop took place in November 2001 and attracted more than 80 lawyers, public servants and insurers from 30 countries,<sup>6</sup> the majority of which are OECD member countries. They recounted and compared the various measures that would be taken in their respective countries to address issues ranging from initial public notification of the accident to the implementation of measures to prevent initial or further damage, the provision of financial, physical or psychological emergency assistance, the evaluation of damage actually suffered or incurred, and the institution of compensation claims. They covered almost all issues from both a national and international perspective, with special emphasis on the existence of co-operative measures between their own and neighbouring countries.

Certain countries, like France and the "affected neighbouring countries",<sup>7</sup> played a much larger role than did the others. This latter group had been selected in advance, based not only upon their geographic proximity to the accident site, but to ensure a diversity of perspective between "nuclear" and "non-nuclear" countries, between countries which are party to the international nuclear liability regime and those which are not, and between countries whose domestic regimes impose limits upon the amount of nuclear operators' liability and those whose regimes allow for unlimited liability of their nuclear operators.

Before examining the Workshop issues in greater detail, it would be useful to provide the reader with a brief description of the nuclear third party liability and compensation regimes that exist in most OECD member countries.

### 3. Nuclear third party liability and compensation regimes

To begin with, the vast majority of OECD countries have adopted special liability and compensation legislation to ensure that third parties that suffer damage as a result of a nuclear accident have recourse to adequate compensation. This legislation is unique, deviating as it does from the normal legal principles that determine liability for damage resulting from a hazardous activity. In essence, it provides that the operator of a nuclear installation,<sup>8</sup> is both strictly liable<sup>9</sup> and exclusively liable<sup>10</sup> for nuclear damage suffered by third parties<sup>11</sup> as a result of a nuclear accident occurring at its installation or involving nuclear substances coming to/from that installation. That liability is usually limited in time, with victims having to bring their claims within a prescribed period following the accident, and in amount, such amount varying widely from country to country.

In most cases the operator is required to maintain financial security covering its liability to ensure that funds will be available to pay the compensation required.<sup>12</sup> Private insurance is the method most commonly used, but given the risks and levels of coverage involved, individual companies cannot insure on their own. In each country, therefore, insurance is provided by a "pool" of companies which join

<sup>4</sup> Details of the accident scenario may be obtained by contacting the NEA Secretariat.

<sup>5</sup> See IAEA document GC(39)/Inf/8, Annex D-4. International Nuclear Events are either classified as "out of scale" meaning they do not have any nuclear safety significance, "below scale" meaning they are safety-relevant but not safety-significant, or "on scale" meaning they are safety significant and are categorised according to their consequences at 7 levels; events at level 1 are "anomalies", those at levels 2 and 3 are "incidents" and those at levels 4 to 7 are "accidents".

<sup>6</sup> Austria, Belgium, Bulgaria, Canada, the Czech Republic, Croatia, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Japan, Korea, Lithuania, Luxembourg, the Netherlands, Poland, Romania, the Russian Federation, the Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Ukraine, the United Kingdom and the United States.

<sup>7</sup> Belgium, Germany, Ireland, Luxembourg, the Netherlands, Switzerland and the United Kingdom.

<sup>8</sup> Most OECD countries define "nuclear installation" to include nuclear reactors, nuclear fuel fabrication and processing plants, isotope separation plants, irradiated nuclear fuel reprocessing plants, and facilities for the storage or disposal of nuclear fuel or radioactive products or waste.

<sup>9</sup> *Strict liability* means that the operator is liable regardless of whether its fault or negligence can be established.

<sup>10</sup> *Exclusive liability* means that it is *only* the operator who can be held liable.

<sup>11</sup> A "third party" is anyone other than the operator.

<sup>12</sup> In most OECD countries, the required financial security may only be used as compensation for victims and not for the payment of interest or costs.

together on a co-insurance basis. National pools then look to each other for additional capacity through reinsurance mechanisms.

Annex 1 contains a table indicating the amounts of liability that are imposed upon nuclear operators pursuant to national legislation in OECD member countries together with the corresponding financial security requirements in respect of those liability amounts.

Most OECD member countries also have mechanisms in place by which additional compensation can be made available from public funds where the operator's financial security is not adequate to compensate the damage incurred. Such measures vary from country to country, but usually require prior parliamentary approval.

In addition to national systems, many countries are party to one or more international conventions that establish regimes to manage the complicated process of claiming compensation for damage from a nuclear accident with transnational effects. All of these conventions provide for the strict and exclusive liability of the operator, fix the liability amount and prescription periods, provide for one single court to determine all compensation claims, and prohibit discrimination between victims on the basis of nationality, domicile or residence. Annex 2 contains a list of these conventions and the liability amounts imposed upon nuclear operators in states that are party thereto.

#### 4. The Workshop — issues examined

The Workshop examined in detail the roles played by public authorities, the nuclear operator, the operator's insurer and the courts at each of the following "accident" stages:

1. *Alert phase*: the existence of a grave and imminent danger of a nuclear accident
2. *Accident phase*: the occurrence of effective releases and possible damage
3. *Post-accident phase*: implementation of measures to identify and compensate damage

It is not the intention of this paper to summarise the results of the Workshop. Instead, it will focus on those issues which are the most critical in terms of "putting theory into practice"—issues which hopefully will contribute to an appreciation of the value of nuclear emergency preparedness and response in compensating victims who suffer damage as a result of a nuclear incident.

##### 4.1. Alert phase: grave and imminent threat of a nuclear accident

Putting nuclear liability and compensation theory into practice during a nuclear accident alert requires advance decision-making on three key issues: *disseminating information, implementing preventive measures and the role of the nuclear operator's insurers.*

##### 4.1.1. Disseminating information

- Firstly, there is a need for a clearly defined procedure for transmitting information from the nuclear operator to the public authorities in the state where the accident takes place,<sup>13</sup> as between national and local public authorities in that state, and within each of those levels as well. Equally important is determining the means of communication to be used, such as normal or special emergency lines for telephone, fax and email, pre-established internet sites, police communication services, etc.
- Secondly, there is a need to designate who is responsible for communicating information to the public and to define what that information should comprise. The "who" may be a local or national public authority or the nuclear operator. The information conveyed should describe the preventive measures to be taken to minimise or prevent damage, and should alert the public to the types of damage that may be incurred, the availability of compensation thereof, and the various roles to be played by public authorities, the nuclear operator and its insurers in handling compensation claims.
- Thirdly, the public authorities of the accident state must establish clear lines of communication with potentially affected neighbouring states, and that communication must be a two-way street: the "accident state" must convey relevant information concerning the anticipated accident and the neighbouring state must provide detailed information on the accident's consequences within its borders. In this regard the mechanisms called for under the 1986 Convention on Early Notification of a Nuclear Accident and the 1986 Convention on Assistance in the Case of Nuclear Accident or Radiological Emergency,<sup>14</sup> for the implementation of which the International Atomic Energy Agency (IAEA) has established an international reporting system, are very important. So are the provisions of Council Directive 89/618/EURATOM<sup>15</sup> on informing the general public about health protection and other measures to be taken in the event of a radiological emergency.<sup>16</sup> It is worth noting that during the Gravelines simulation, France only contacted the United Kingdom and Belgium directly, whereas all other potentially affected states were informed by the IAEA or the European Commission.

<sup>13</sup> This will usually be the state where the liable operator's installation is located, but it may be elsewhere if the accident occurs in the course of transporting nuclear substances internationally.

<sup>14</sup> Both conventions were adopted on 26 September 1986. The first, which entered into force on 27 October 1986 has 87 Contracting Parties, and the second, which entered into force on 26 February 1987 has 84 Contracting Parties.

<sup>15</sup> OJ L 357, 7.12.89.

<sup>16</sup> See also Council Decision 87/600/EURATOM on community arrangements for the early exchange of information in the event of a radiological emergency.

#### 4.1.2. Implementing preventive measures

- The first “advance planning” issue is determining who is empowered to make decisions on taking preventive measures. While such power usually vests in national governments, whether with a Minister or Ministerial Committee, an emergency management organisation, a nuclear regulatory body or any other agency, this information should be known in advance. Similarly, the public should be aware of whether local public authorities are also entrusted with this power.
- Secondly, emergency preparedness planners can benefit from an already established list of possible and available preventive measures. Those measures could include activities of a local nature, such as instructing the near vicinity population to remain indoors or alternatively to evacuate their homes and work places, limiting access to the affected zone, or administering iodine tablets to the exposed public if the risk is sufficiently high. They could also include regional or national measures, such as prohibiting the harvesting and selling of certain food products which may risk being contaminated.
- Thirdly, there is a need to co-ordinate the implementation of preventive measures with neighbouring states whose populations may be identically affected. Intervention levels can differ widely between countries. Bilateral agreements may attempt to harmonise intervention criteria and contain effective co-ordination mechanisms but where no such agreements exist, guidelines should be established to assist decision-makers so that cost-efficiency is maximised and duplication is avoided or minimised.
- Lastly, there should be certainty as to who will bear the cost of implementing preventive measures, what conditions or restrictions apply to their implementation and whether there is a financial limit beyond which such measures will not be implemented. Here, a distinction needs to be made between costs resulting from preventive measures taken by public authorities in the course of fulfilling their civil protection obligations (such as evacuation costs) and costs resulting from measures taken to minimise the consequences of the accident (such as loss of income resulting from evacuation). The first category may be the responsibility of either the nuclear operator or the public authorities, depending upon the country, while responsibility for the second category most often lies with the nuclear operator.

#### 4.1.3. The role of the nuclear operator’s insurers

In most countries, the nuclear operator is responsible for notifying its insurer of the danger of a nuclear accident occurring, but other issues need to be considered as well. Has the operator designated a specific person(s) to be responsible for that notification and is the operator sure that the insurer will answer the phone when that all-important call is made? Does the operator know if its insurer will intervene in the situation immediately and what form that intervention

will take? For example, will the insurer establish a claims evaluation and handling centre in the field? Does the nuclear operator know whether its insurer has associates or agents in potentially affected neighbouring states, does it know who those associates or agents are, and how they can be contacted? Do the national and local public authorities have this information as well?

#### 4.2. Accident phase: effective releases and possible damage

At this stage, two issues need to be addressed if there is to be any success in putting nuclear liability and compensation theory into practice: *emergency assistance* and, once again, *the role of the nuclear operator’s insurers*.

##### 4.2.1. Emergency assistance

This is probably the matter of most direct concern to potential victims in the case of a nuclear accident and it requires the determination in advance of several major questions:

- Firstly, public authorities in both the state where the accident takes place and in affected neighbouring states must know what type of emergency assistance they are prepared to provide and up to what limit. They must also know whether the operator’s insurers are equally prepared to provide emergency assistance payments (or other forms of assistance), and if so, how the provision of assistance from both sources can be effectively co-ordinated.
- Secondly, those responsible for delivering emergency assistance, be they national or local public authorities, the nuclear operator, the operator’s insurer or its insurance pool, should be obliged to communicate the details of that assistance to the public. Details include a description of the types of expenses which that assistance is designed to cover, such as medical expenses, the cost of transport, temporary lodging and food for persons who have to be evacuated from the accident site, essential living expenses and psychological counselling. As with other types of communication, a range of media services can be used for this purpose.
- Thirdly, the manner in which emergency assistance payments will be made should be determined. Will an emergency assistance account be opened immediately to respond to claims for compensation? Will payments be made by cash/cheque, via a debit/credit system or will pre-paid services be provided? Will payments be made in a lump sum or on the basis of actual costs incurred, justified by vouchers and receipts? Is there a maximum limit imposed upon the amount of such payments?
- Finally, public authorities should determine the criteria for providing emergency assistance payments, including such formalities as establishing the victim’s identity and obliging victims to provide a certain level of proof that their incurred costs and expenses actually result from the nuclear accident.

#### 4.2.2. The role of the operator's insurers

Both the public authorities and the nuclear operator need to know what the operator's insurer will do once it has gone into "the field", which of course may not be limited to the accident site alone but could include affected neighbouring states as well. Most insurance companies offering third party liability coverage to nuclear operators would send inspectors, claims staff or independent loss adjusters into evacuation zones or adjacent areas to establish a register of persons who are injured or in need of emergency assistance. They would also begin to make their first estimates of potential compensation claims. However, assurance is needed that the insurer will arrange for similar steps to be taken by its associates or agents in affected neighbouring states having suffered transnational damage.

#### 4.3. Post-accident phase: implementing measures to identify and compensate damage

In addressing this third phase of a nuclear accident, the Workshop identified five key issues for successfully putting nuclear liability and compensation theory into practice:

1. Disseminating information to the public.
2. Handling compensation claims.
3. Interface with worker compensation regimes.
4. Instituting claims for compensation.
5. Implementing the international nuclear liability regime.

##### 4.3.1. Disseminating information to the public

- One of the most important issues at this stage is to know who is responsible for disseminating information on victims' rights to compensation for damage. That responsibility is most likely to lie with the nuclear operator and/or its insurer in countries with nuclear power programmes, and with public authorities in countries that have no such programmes, but it may also be a shared responsibility between the operator, its insurer and public authorities.
- The public equally has a right to know what compensation measures exist, the amount of compensation funds that are available, who will be providing that compensation (the operator, the operator's insurer, the state or a combination thereof) and the steps that victims will need to take to institute their claims, including such practical matters as where to obtain and submit compensation claim forms and within what time period.
- The operator's insurer should have in place the means to make itself, its associates and agents quickly known to all health and medical authorities, establishments and facilities in countries where nuclear damage has been suffered, and to quickly identify itself, its associates and agents to nuclear damage victims and their families in all countries where nuclear damage has been suffered.

#### 4.3.2. Handling compensation claims

- Putting theory into practice also means determining who is responsible for managing compensation claims (registration and payment) and who will pay for that management. Insurers are probably best equipped to assume that responsibility because of their vast claims handling experience, but it may be preferable for insurers to work together with their insured operators or through services made available by an insurance pool. In most countries with nuclear power programmes, these costs are assumed by the operator or by its insurer with the latter imposing a limit upon the amount, whereas such costs are more likely to be borne by the state in non-nuclear power producing countries.
- Handling claims also requires the establishment of a system for identifying nuclear damage victims, both in the accident state and in affected neighbouring states — a system that could involve sending experts into the field to assess the situation, requiring victims to complete comprehensive questionnaires concerning the damage they have suffered, developing an appropriate database of victim information or requiring victims to register their claims with an office especially set up for that purpose. It might be more efficient, for example, for the operator's insurer to determine compensable heads of damage initially, leaving unsatisfied claimants to bring additional claims before the courts later.
- The various types of nuclear damage that qualify for compensation need to be clearly defined and communicated to the public—personal injury (whether limited to bodily injury or otherwise), death, and all associated medical and ancillary expenses; preventive measures such as evacuation costs; loss of salary or other revenue and other forms of economic loss; damage to real or personal property, including decontamination costs, the cost of re-instating the environment, and any other special damages.
- A system for estimating the total extent of damage should also be established for the benefit of the nuclear operator, its insurer, and national and local public authorities. This could involve, for example, mobilising qualified experts, at both the national and international levels, to evaluate the damage. Such experts might represent the operator, its insurer, public authorities, the courts and nuclear emergency preparedness/response organisations. It is only reasonable to assume that following such estimates and expert evaluations, the state of the liable operator would address the issue of distributing compensation equitably where it is obvious that the operator's financial security is insufficient to cover the damage incurred.
- A procedure should be established whereby compensation claims can be managed over the medium to long term, preferably by the same entity that initially handled the claim. Such a procedure could, for example, be provided for in agreements between the operator's insurer and its associates or agents in affected neighbouring

states and could address the means by which information on the treatment of victims is transmitted from health care establishments/hospitals in both the accident state and in affected neighbouring states to the insurer or its associates or agents (where permitted by law).

#### 4.3.3. *Interface with worker compensation regimes*

- The compensation regime applicable to workers exposed to radiation, whether pursuant to labour, social security or nuclear liability legislation, should be well defined. Workers should know to whom they must address their claims, how much they are likely to be compensated and within what time period they must file. They should also know whether they have a right, where their damages exceed the compensation limit provided for under that regime, to claim the difference from the nuclear operator and its insurer.
- From a practical point of view, it would be useful to know whether the entity providing compensation for work-related accidents has a right of recourse against the liable nuclear operator, to obtain indemnification for those amounts paid out, and if so, whether there are any conditions or restrictions applicable to that right.

#### 4.3.4. *Instituting claims for compensation*

- Victims must be informed of the statutorily defined periods within which they must bring their claims. Most countries prescribe 3 years from the date upon which the victim knew of the damage and of the entity which caused it, and 10 years from the date of the nuclear accident. However, these periods are variable and many countries provide longer prescription periods for personal injury claims than for property damage claims.
- Victims must understand the procedure for instituting their claims for compensation. They should know if the liable operator's insurer can be sued directly, either in the state in which the accident has occurred or in an affected neighbouring state, or whether claims may be brought against the operator only. Will a victim's public authorities assist that victim in bringing a claim? Is it clear which level or system of court has jurisdiction to determine such claims? Are class actions possible? How will court judgements be recognised and enforced in other states? Are amicable settlement procedures in place?

#### 4.3.5. *Implementing the international nuclear liability regime*

- The two principal international nuclear liability conventions, the Paris Convention on Third Party Liability in the Field of Nuclear Energy and the Vienna Convention on Civil Liability for Nuclear Damage, only benefit victims within the territories of their respective Contracting Parties unless a contracting party has joined the 1988 Joint Protocol relating to the Application of the Vienna Convention

and the Paris Convention, in which case that Party will be treated as if it were a Party to both conventions. Jurisdiction provisions are found in all three instruments and national law continues to apply to many procedural matters.

- The Brussels Convention Supplementary to the Paris Convention provides for additional compensation to be made available where the amounts provided for under the Paris Convention are insufficient. Such additional compensation is furnished by tiers, the first being provided by the nuclear operator under the Paris Convention and the second by the Contracting Party whose nuclear operator is liable for the damage. Where the amount of nuclear damage suffered exceeds the total of the 1st and 2nd tiers, all Parties to the convention will be required to contribute to the 3rd compensation tier, currently set at 125 million special drawing rights.
- Putting theory into practice also means planning uniform claims handling for the three compensation tiers under the Brussels Supplementary Convention. If insurers are to handle compensation claims up to the limit of the first tier (for which the nuclear operator is liable), should they not assume this responsibility for the second tier (for which the state of the liable nuclear operator is liable) and even the third tier (for which all Contracting Parties are liable)? If so, would that be accomplished through special agreements between the Convention Parties and their lead national insurers? Should insurers' adjusters then be authorised to determine the amount of damages incurred, and if so, should their determinations be final and binding upon the operator, the competent court and eventually upon the other Parties to the Convention?
- As a final point, public authorities should know how the contributions to be made available under the third tier of the Brussels Supplementary Convention would be paid. Might some parties advance their contributions, or will parties be able to set off against required contributions, amounts to which their own nationals will be entitled under that Convention? Will a Party's contributions be paid to public authorities in the state whose operator is liable, to an escrow fund to be held by the competent court of that state or even to a trust fund established for the benefit of victims and managed by the insurers? While this is not an exhaustive list of questions to be addressed, it does comprise the most important of them.

## 5. Conclusions

It is clear that all Workshop participants found the discussions to be extremely helpful, both for assessing the current state of nuclear emergency preparedness and response in the various countries involved, and for motivating those same countries to better prepare themselves in the future for managing the liability and compensation issues arising from a nuclear accident.

More specifically, however, the Workshop revealed striking differences in the solutions adopted or envisaged by

participating countries for addressing the liability and compensation aspects of a nuclear accident. This is understandable, given the diversity of national contexts and legal structures, and such diversity is not likely to have any serious impact as long as the consequences of a nuclear accident remain exclusively or primarily confined to the state in whose territory it takes place.

The impact of such diversity would likely be far more serious, however, if the accident were to have significant transnational effects, a matter of high probability were the accident to occur in Europe. Such diversity might then lead to the less than desirable result of differing treatment for similarly affected victims. For that reason it might be useful, in the future, to investigate the possibility of harmonising, these various national measures, at least in the longer term.

It was also evident that insufficient co-ordination exists between almost all levels of public authority, not only in the state where the accident has supposedly taken place, but as well in affected neighbouring states. Participants in the Workshop were very sensitive to these failings, primarily because they appreciate that providing emergency assistance in a well-organised, competent and useful manner is essential to establishing public trust and confidence in their governments.

The OECD/NEA hopes to incorporate nuclear third party liability and compensation elements into its next series of INEX exercises, and in that regard, looks forward to continued co-operation with government representatives, nuclear operators and nuclear insurers to ensure that the consequences of a nuclear accident are addressed in the most efficient, effective and equitable manner possible for all victims.

#### Appendix A. Liability amounts and financial security limits in OECD member countries as of September 2002 (Unofficial Statistics-OECD/NEA)

Member country	Liability amounts in national currency or SDRs <sup>17</sup>	Financial security limits, if different from liability amounts, in national currency or SDRs
Australia	No specific legislation	
Austria	Unlimited	ATS 5.6 billion (400 million SDR)
Belgium	BEF 12 billion (300 million SDR)	
Canada		CAD 75 million
Czech Republic	CZK 6 billion	
Denmark	SDR 60 million	
Finland	SDR 175 million	
France	FRF 600 million (80 million SDR)	
Germany	Unlimited	Euro 2.5 billion
Greece	No specific legislation	
Hungary	SDR 100 million	
Iceland	No specific legislation	
Ireland	No specific legislation	
Italy	ITL 7 500 million (5 million SDR)	
Japan	Unlimited	JPY 60 billion (440 million SDR)
Korea	SDR 300 million	
Luxembourg	No specific legislation	
Mexico	MXP 100 million	
Netherlands	NLG 750 million (300 million SDR)	
New Zealand	No specific legislation	
Norway	SDR 60 million	
Poland	SDR 150 million	
Portugal	No specific legislation	
Slovak Republic	SKK 2 billion	
Spain	ESP 25 billion	
Sweden	SDR 300 million	
Switzerland	Unlimited	CHF 1 billion (450 million SDR)
UK	GBP 140 million (150 million SDR)	
USA	USD 9.7 billion	USD 200 million

<sup>17</sup> “Special Drawing Right” or SDR is a unit of account defined by the International Monetary Fund. It is calculated daily on the basis of the Euro, Yen, Dollar, and Pound sterling. As of 14 April 2003, SDR 1 was equivalent to Euro 1.269 and USD1.363.

## Appendix B. International nuclear liability conventions<sup>18</sup>

- 1960 Paris Convention on Third Party Liability in the Field of Nuclear Energy provides for a maximum liability of 15 million SDRs although most Contracting Parties have imposed far higher amounts upon their nuclear operators pursuant to national legislation.
- 1963 Brussels Convention Supplementary to the Paris Convention, provides for a maximum amount of 300 million SDRs to be made available to victims in States Party to both it and the Paris Convention via a three-tier system of compensation.
- 1963 Vienna Convention on Civil Liability for Nuclear Damage imposes a minimum liability amount of US\$ 5 million.<sup>19</sup>
- 1997 Protocol to Amend the Vienna Convention on Civil Liability for Nuclear Damage imposes a minimum liability

amount of 300 million SDRs (1/2 of which may be provided by the State in whose territory the installation is situated).

- 1988 Joint Protocol relating to the Application of the Vienna Convention and the Paris Convention links the Paris Convention and the Vienna Convention.
- 1997 Convention on Supplementary Compensation for Nuclear Damage imposes a two-tier compensation system totalling approximately 600 million SDRs.

The Paris and Brussels Supplementary Conventions are currently being revised. Once their respective amending protocols come into force, the minimum liability amount imposed upon Paris Convention State operators will rise to not less than 700 million euros, while the total amount of compensation to be made available under the combined Paris–Brussels regime will increase to a maximum of 1.5 billion euros.

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<sup>18</sup> The 1997 Protocol to Amend the Vienna Convention on Civil Liability for Nuclear Damage came into force on October 4, 2003. The 1997 Convention on Supplementary Compensation for Nuclear Damage has not yet come into force.

<sup>19</sup> This amount is defined by reference to its value in gold on 29 April 1963. It is generally considered to have a value of approximately US\$60 million today.