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SIXTH SESSION:

A. NUCLEAR LIABILITY CONCEPTS REVISITED

Reviewing the Justification and
Adequacy of Existing Legal Principles
Governing Nuclear Third Party Liability

By

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"REVIEWING THE JUSTIFICATION AND
ADEQUACY OF EXISTING LEGAL PRINCIPLES
GOVERNING NUCLEAR THIRD PARTY LIABILITY"

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A.

In recent years, more and more countries have for the first time enacted their own nuclear laws which - as distinguished from the various national "classical liability systems" - contain specific provisions on nuclear third party liability, or have by ratification or by accession to one of the two European Conventions on Nuclear Liability (1) adopted a principle of liability which you know by the catchword of "legal channelling". These "newcomers", in the final analysis, have scarcely produced new impulses for discussion on the question of adequacy or justification of a liability law with certain liability privileges. On the other hand, it can be generally noticed that some countries have for some time been seriously considering a reform of their existing nuclear liability law and in this respect are putting up for discussion even some basic legal principles of granting a privileged position as to liability.

While Switzerland has already completed its reform efforts with the new Nuclear Energy Liability Act passed on March 18, 1983, the discussion about possible or necessary changes in the existing law is still more or less continuing, for example, in the USA and in the Federal Republic of Germany (2). Switzerland is now, in addition to Japan (3) the second country with a nuclear industry operating along free-economy lines that fixes an unlimited amount of liability for nuclear damage.

I do not wish to expand on the extent to which reform considerations are being influenced or were even initiated by the "Three Mile Island"-accident of March, 28, 1979 (4); be it noted only in passing that the reform plans in the USA surely are not for the most part based on the fact that the Price Anderson Act in force did not prove itself in actual practice (5), or the considerations in Switzerland or in the Federal Republic of Germany on the fact that in a comparable case the law in force would be inadequate. Instead, under the impression of a growing number of nuclear installations in the various countries and especially their power capacity, the starting point of these considerations seems rather to be a kind of reflection on the peculiarities of nuclear liability law and the reasons given for them. From this basis emerged the idea of a "return to normal conditions" as to the principles of nuclear liability, meaning a purging of liability privileges today no longer regarded as adequate or even justified. Insofar as individual national nuclear laws had orientated their liability scheme on a legally embodied side-by-side of victim protection, on the one hand, and the idea of promoting the peaceful use of nuclear energy, on the other, they are today confronted more and more with a postulate giving precedence to the protective element of nuclear legislation, i.e. to provide protection against nuclear damage. This, however, against the background of

an understanding unchallenged at least among specialists that, even though the security requirements of the licensing authorities may have become much stricter over the years, the existing nuclear power plants as well as those under construction were always designed with an engineered safeguard which at most allows perhaps an additional degree of optimization, but banishes the risk of an "extraordinary nuclear accident" to the realm of the unlikely.

As part of such a reflection on the peculiarities of nuclear liability and the underlying reasoning, also the following appears to be noteworthy: about all nuclear liability laws, regardless of whether or not they are now the object of reform plans, as well as the European Conventions mentioned at the beginning, are less than 25 years on average, and the changes carried out in these laws in the meantime did in the main not go beyond an adjustment to the principles laid down in these Conventions or to an increase in the maximum amount of liability, and furthermore - apart from the Price Anderson Act - so far no nuclear liability law had to be applied to a nuclear accident, thereby having been submitted to stand the test, either in a negative or positive way. Thus, in the absence of any negative practical experience as the basis for reform plans, there remains the fact of the peculiarity intrinsic to certain liability principles of nuclear law and its fundamental deviation from the legal principles of conventional liability law, and resulting from this the aforementioned idea of a "return to normal conditions" of this specific liability law. Irrespective of any dogmatic considerations concerning the law, this idea has been widely fostered by a population ever more critical of nuclear energy and often presenting its view more emotionally than rationally. The public discussion about nuclear liability law and its peculiarities, is to a large extent generally

characterized by a fear of damage of unprecedented magnitude, and by missing or so far generally insufficient enlightenment about the actual physical workings and safety features as part of the erection and operation of nuclear plant. This "fear" - arguing a series of hypothetical assumptions of unfavourable circumstances - has neither experience to go by nor is it based on actual knowledge; but it can be instigated by public discussion on "inadequate" maximum liability amounts or other liability principles which deviate from conventional ideas of liability law and which are said to run counter to a just settlement of a perhaps possible damage, in the sense of comprehensive protection for the victims. Precisely this public discussion of a "concerned" population proceeds from a characteristic error which may place in wrong perspective the arguments on the question of a need to reform one or the other principle of nuclear liability law: potential consequences of accidents and the legal correctives governing them are seized upon, while considering the consequences of an accident in complete isolation from their extreme improbability. People forget or even intentionally overlook the fact that with the today's state of knowhow - even in an extremely unlikely combination of mistakes and unfavourable circumstances - a "national catastrophe" as a result of an accident involving a nuclear power station is impossible. Even where there is such a combination, the consequences will continue to be comparable to those of non-nuclear accidents which occur several times a year (6). This will be the subject of a further discussion later on.

B.

In the following, I shall investigate which of the principles of nuclear liability law - deviating from conventional liability law - have seriously been considered for reform plans, or what principles appeared to warrant raising the question of still valid adequacy or justification. Worldwide, the main principles considered nearly uniformly are:

- . Liability without fault, also called risk or strict liability;
- . Channelling of liability to the owner (or operator) of the nuclear plant causing the damage (7);
- . Limiting this liability to a certain amount;
- . Financial security provided by the owner for his liability risk (principle of the congruence of liability and coverage);
- . In the case of major damage, a system of Government indemnity or risk-coverage for damages exceeding the securities provided.

Even if a few countries (e.g. Switzerland, Japan, USA) show certain differences in the national shaping of these principles, — here comes to mind the absence of any limitation on liability, a different approach to the point in time or the amount where Government indemnity takes effect or the more dogmatic difference between legal and economic channelling — these basic principles of liability occur in a kind of universal commonness which permits one to speak of national and international civil nuclear liability law of largely harmonized content (8).

These principles were by no means first created together with the codification of nuclear liability laws. Various laws of some countries have long provided for the possibility of pure strict liability for certain activities or circumstances of life carrying a certain risk potential; also, liability limitations already provided by law itself are just as little new as the legal obligation imposed on a potential liable party to hold a priori financial security available for possible liability for damages (e.g. in the form of compulsory insurance for vehicles or in air transport). Surely before any nuclear liability law came into force, immanent to many legal systems was the government obligation - even if perhaps unwritten - in the event of a catastrophe (and not only involving Acts of God) to help financially the citizens affected, as an expression of the governmental duty in respect of care and protection embodied in the principle of justice and welfare. Thus the novel aspect in the system of nuclear liability lies not so much in the codification or shaping of this or other principle of liability, but rather in the fact that all of these principles of liability, probably for the first time, are applied together, systematically assigned and mutually complementary, to a certain branch of industry involving the peaceful use of nuclear energy, and were met with nearly uniform international acceptance in this system (9). It is not only the principles of "strict liability" and "channelling" which in this system appear to be meaningfully interlinked and have a mutually complementary effect under the postulate of a just solution, but also the principles of "limitation of liability as to its amount" and "congruence of liability and coverage" which cannot necessarily be considered separately, supplemented by the corrective effect of possible Government indemnity.

1. Even if the principle of strict liability, because of its objective character, aloof of any fault, is surely one of the most interesting ones with regard to the political or dogmatic aspect of the law, I can cover this matter briefly. In many legal systems, this kind of liability is an integral part of the legal system of liability, standing as second column next to the perennial liability for "fault". In this two-sidedness, it cannot be found other than in special laws in which liability for a set hazard is provided to cover concrete facts and circumstances and not to constitute balancing of the consequences of a wrongful act, but equitable and just settlement of damages from an accident (10). It is generally recognized and will remain to be so in the foreseeable future, that strict liability is probably the only commensurate and justified form of liability which fits into the picture of - albeit hypothetical - "risk potential" of nuclear installations (11), especially since it is applied in various other laws as the commensurate solution for a just liability system, to cope with considerably smaller potential risks.

Whenever

- . there is a high probability of an accident, or there is a risk of very serious damage, even if the probability that it will occur is low;
- . the damage is likely to affect the population directly;
- . the activity concerned is nonetheless sufficiently important to the nation as a whole to justify its being undertaken,

the solution of strict liability would appear to be justified (12), — in particular because of the

consequence immanent to it that burden of proof of an injured party is limited to demonstrate the actual occurrence of damage and its causality with an event.

2. While the principle of strict liability per se presents itself as rather unproblematic for nuclear law, the interaction between strict liability and the principle of (legal) channelling created in the nuclear laws appears at first sight to be quite problematic from the ethical and dogmatic aspects of law. By channelling of liability we mean an arrangement by which the liability of many parties possibly liable is channelled to, or concentrated in, a single person (owner of the plant), with the result that the liability of this individual replaces that of others; where legal liability is radically concentrated in a single person, the liability of others (even where they are at fault) is precluded *expressis verbis* (13). In this case, for the special instance of nuclear liability law, the two-sidedness of conventional liability law which usually leaves liability for "fault" unaffected next to strict liability, is abandoned and a liability law granting privileges is created, which exempts not only all third parties, but also the owner himself from any liability for "fault", usually not limited under the law. A lawyer not concerned with nuclear law, even if he is familiar with the ever-increasing trend from liability for "fault" to strict liability in today's third-party liability law (e.g. product liability), may hesitate to understand this anomaly in respect of normal liability law and the unusual extent of the privilege granted. Nevertheless, channelling is based on a reasonable and in law dogmatically acceptable principle, even if it concerns itself with the irrelevance of human fault, and thus laying itself open to ethical objections. In addition to the more dogmatic reasoning

that the compensation law of modern engineering must no longer be linked to human behaviour and the person causing the damage, but should proceed from the damage occurred and shift it to where it can definitely be borne (14), the Exposé des motifs of the Paris Convention (15), for example, gives two reasons for introducing legal channelling:

- . It is desirable to avoid difficult, lengthy and costly questions of complicated legal cross-actions to establish in individual cases who is legally liable (obviously especially in view of the many companies and persons involved in the construction of a nuclear plant);
- . Secondly, it would otherwise be necessary to take out, in addition to the insurance of the owner, special insurances for any other persons liable, which would be very expensive and which it is not certain would be available.

This last argument of avoiding an "accumulation of insurances" is occasionally controversial (16), but in my opinion still holds fully good today; moreover, it is unrealistic to assume that the insurance business at large could build up a "liability capacity for damage caused by fault" in addition to the (already very high) "unforeseen risk capacity" (17).

In its interaction with strict liability independent of fault, such liability channelling on the plant owner alone represents an adequate means of controlling the legal side of a risk potentially related to the peaceful use of nuclear energy; in this matter, it is quite possible to live up to the requirement,

immament in civil law, of protecting and regulating the order of goods and values (18). Disregarding for a moment the financial relief of third parties participating in the construction and maintenance of nuclear plants, from risks part of which is unsurably high, there exists a considerably major pragmatic benefit of the legal channelling of liability: this benefit lies in the fact that it was possible to achieve and maintain a necessary legal standardization which simplifies the problems of liability and insurance and reduces their cost, and also makes possible international financial compensation where major damage is involved (19) - not lastly in favour of the legal protection of a possibly affected population. It is therefore not surprising that Switzerland, under the comprehensive reform of her nuclear liability law, has now again acknowledged the principle of legal channelling of liability, and in this connection - despite occasional other considerations - ultimately indicated clearly that the consistent application of the principle of channelling liability also entails as a matter of principle, the exclusion of a statutory right of recourse against a third party at fault in causing nuclear damage (20).

3. The official findings of law given for the 1976 version of the German Atomic Energy Act (21) state that liability even where a third party is at fault can, in consequence of legal channelling, be reasonably expected to rest with the owner of the plant, because the statutory limitation of the amount of liability and any Government indemnity obligation also operate in his favour. This takes us to a very controversial principle of nuclear liability: its limitation as to amount.

3.1 Statutory liability arrangements which limit the amount the party liable for damage is required to pay, often contain an element of injustice, because it cannot be precluded that injured parties will not be compensated or at least will have to suffer a distribution by quotas of their portion of the claim. On the other hand, it should not be overlooked that unlimited liability as to amount might possibly lead to the ruin of the plant owner. In this respect, it should be borne in mind that nobody in the economy is served when companies of the electrical power industry, as such usually also fulfilling a legal mission, are allowed to be ruined (22). Furthermore, as unlimited liability by no means creates unlimited coverage as well, it would only appear to be providing more security; the principle of the congruence of liability and coverage thus abandoned, it would not improve protection of the victims (23); with reservation as to the scope of Government intervention, it would be limited to the existing private property of the parties liable plus the bankrupt's estate. The amounts of liability limitation to be found in present atomic energy laws may be compromises to cope with the opposing interests of just distribution of the burden between the owner and the potentially injured. Not only are some of the liability limitations regarded as being too low, but rather, independent of their actual amount, occasionally even as illogical, arbitrarily chosen or apostrophized as a granting of anachronistic privileges (24).

3.2 The considerations leading to limiting the amount of nuclear liability started with the question of the economic ability of the owner of the nuclear plant to bear a possibly very large damage potential (25). Against the background of the double function already mentioned for the nuclear energy law - protection against the hazards of nuclear energy and promoting its peaceful use -, limitations, in the last analysis, are justified by the economic reason that a nuclear industry basically operating on market-economy lines should not be exposed to a liability threatening its very existence (25). Precisely this granting of privileges to the nuclear industry is now being charged with anachronism in view of the downgrading of the promotional function of the nuclear energy law by the paramount purpose of providing protection; the demand for an "increase" in the protection of the victims is argued as being a logical consequence of this change in the scale of values (26).

3.3 I would not share this position, insofar as it is intended to provide a reason for introducing unlimited liability.

Some existing liability limits of up to more than DM 1 billion, and as under discussion, increases of liability limitations in the region of DM 2 or DM 4 billion or even up to US \$ 15 billion (27), are surely no longer motivated by an arrangement intended to promote industry. Not only are these amounts of liability extremely unusual, and so far without compare as to the likelihood of their realization, but inevitably also beyond any insurance coverage; in any form of financial

participation, they could, in case of doubt, come close to the loss of the own resources of the owner liable or of a majority of operators. If it is desired to give the hazard potential of nuclear plant a special position in the scale of values, then abandoning the principle, declared to be correct and binding for decades, of limiting liability (to whatever amount) is not necessarily the adequate or justified solution of diverging interests; among the public, this turning away could be seen as an implied admission to the fact that despite all safety systems, safety studies and reports, nuclear plant still appears to involve a degree of actual danger which limited liability can no longer cope with in a legally appropriate manner.

The present state of safety feature and knowhow in the operation and behaviour of nuclear plant proves that this is not the case. It is certainly correct that the 1975 Rasmussen report of which you are aware, as well as the 1978 German risk study of nuclear power plants (28) have shown that the risks from the operation of nuclear plant can be rated comparatively low, but that accidents of large consequences - even though extremely unlikely - cannot actually be entirely excluded. However, both papers make a point of applying the feature of "conservative assumption", i.e. gaps in knowledge such as involving physical processes were bridged by pessimistic assumptions (29), thereby causing the effects of accidents in particular to be considerably exaggerated. Today's knowledge is based on the additional experience of 8 or 4 years respectively; the latest results of research

- based on experiments also - have closed existing gaps and permit former assumptions and thus calculations of the consequences of "nuclear power plant accidents" to be excluded as being too negative, thus uncovering as unreal the scenario of a national catastrophe as the result of a hypothetical accident. What remains, is a slight residual risk, at most, one which contributes only minutely to the entire range of voluntarily accepted or unavoidable risks of everyday life, and which, within the meaning of a decision rendered by the German Supreme Constitutional Court (30) for example, must be accepted as socially adequate.

The adequate protection under liability law against accidents and their consequences, no doubt rightly requested for the operation of nuclear installations, has to orientate itself by the probability of an occurrence and the amount of damage reasonably to be expected. In the light of today's knowledge, there are no legal objections - even under the aspect of priority for the protective function - to liability protection ignoring unreal and hypothetically constructed consequences of damage which are outside any virtually conceivable residual risk (31). Consistent with this, the protection of victim can then no longer be abused as a serious argument for events of which science now says that they will not occur.

- 3.4 The discussion about the limitation or non-limitation of nuclear liability will surely continue; under the viewpoint of adequacy or justification, the antinomy underlying each reason given will probably not be solved. The

question as to whether an unlimited or limited liability is the "normal" thing in the case of strict liability, will not get at the core for a solution; examples can be cited and substantiated for both alternatives (32). Whenever a legislator intends to increase amounts of liability, such as for the apparent reason of increasing the acceptance of nuclear energy, or to actually improve statutory protection of victims, he may have enough leeway seeking equitable adjustment of conflicting interests; in doing so, and on the basis of hypotheses and the likelihood of catastrophic damage or so which can no longer be substantiated, he has necessarily not to move away from a principle of limited liability created to have international validity and repeatedly re-confirmed, by purely using theoretical arguments of law. He certainly cannot be charged with arbitrariness, at least not if he fixes the amount of liability so as to positively cover the extent of damage still realistically conceivable - although remotely probable - in the sense of a possible residual risk.

4. In treating the last two principles, I can again be more brief, because so far neither the principle of the "congruence of liability and coverage" nor that of "State intervention" as such have directly been the object of serious reform plans; from my view of the matter, I would prefer not to go into the problems how these two principles should be dealt with in the event the principle "of limited liability" is abandoned (33).

- 4.1 In the system of nuclear liability law, the principle of congruence is very high up on the scale of values; it is a "major structural characteristic" (34). The statement according to which the liability of the owner has to be covered by financial security, serves a double purpose: to give the injured the assurance that his claims will not go unsatisfied in case of need, and to protect the liable owner against ruinous claims (34) — again an expression of the double function of the nuclear law. Since the best liability system is of no value unless crisis-proof funds are quickly and positively available when needed (35), the requirement of financial protection per se - and that precisely on the argument giving priority to the protection of victims - is beyond any charge of inadequacy or injustice. At most, one might discuss the question as to who should hold this financial security available in its congruence to liability, and up to what reasonably permissible burden.
- 4.2 In the framework of this discussion, the principle of State intervention or of Government indemnity has its place — as a surrogate or corrective of financial securities not covered or not capable of being covered by private business when considering the volume of liability involved. When and in what form State intervention should take effect is likely to be more a problem of capability of the international insurance business and an economic question of the government concerned. Politically and legally, State intervention as such is reasonable and justified by the fact that the government, by creating an Atomic Energy Law

and the administrative directives based on it, has assumed a certain co-responsibility for the existence and concrete construction of nuclear plant (36) — ultimately a consistent continuation or implementation of the principle of strict liability. By taking over financial risks which private business can no longer cover, the government also expresses its confidence in the safety of the nuclear installations it has licensed, and it can help to dispel any existing fears. Government involvement of a reasonable extent is thus justified not only by reason of protection of potential victims, but also - without becoming involved in a conflict of interest - in the interest of promoting the peaceful use of nuclear energy (37).

C.

Thus, the principles of liability discussed continue to be lasting; and not only because of their uniform shaping do they apply worldwide in nearly all nuclear laws, with more or less minor deviations, but because they also stand up to a test of adequacy and a just balancing of interest. It is now and then stated that the liability privileges thus created for the owners of nuclear installations and of the industry involved in their construction and maintenance might have the effect of lessening the sense of responsibility of these companies and their obligation to work carefully (38). In my final observation, I would most decidedly oppose this position, because I think that such considerations are basically misconceived. This would not only mean ignoring the extremely strict checks of the kind imposed on the

owner of a plant under construction or while in operation; it might also suggest the notion that the nuclear industry could be prepared to accept serious economic consequences from "laxness", on the one hand and to hazard its technical reputation, on the other. In my view, we owe it to our scientists and engineers, on the basis of hitherto existing development, to state that a sense of responsibility was displayed in the construction, operation and maintenance of nuclear installations which has not given any reason to raise any charge of carelessness. Incidentally, mistakes are always made only by humans; the sense of responsibility of a fitter, engineer or manager will be sharpened more by the risk of being held personally responsible under criminal law, than by the risk of financial consequences under civil law for his employer.

On the other hand, we lawyers should not discredit the confidence which engineers and scientists through their work on nuclear plant safety have gained and also deserve on the strength of the knowledge obtained, by trying to "legally" create, on the basis of theoretical or dogmatic legal thinking, a potential hazard of nuclear plant which in the light of today's technical knowhow is regarded to be unreal or at most a hypothetical case, and thus does not justify reform plans.

I think we are all agreed that in respect of safeguard feature, expert valuation and licencing of nuclear plant, the engineers and scientists did not proceed from the scheme of any nuclear liability law - with limitation on liability or not - that happens to be or to come into force in a particular country.

References

- (1) The Paris Convention on Third Party Liability in the Field of Nuclear Energy as of July 29, 1960 / January 28, 1964 with its Brüssels Supplementary Convention as of January 31, 1963 / January 28, 1964 and the Vienna Convention on Civil Liability for Nuclear Damage.
- (2) See Pelzer, *Begrenzte und unbegrenzte Haftung im deutschen Atomrecht*, 1st edition, Baden-Baden 1982, p. 12, 13, 58 et seq., with further references; von Welck, *Überlegungen zur Reform des Atomhaftungsrechtes in den USA*, *Atomwirtschaft* 1980, p. 241 et seq.; H.K. Shapar, *Indemnification for Nuclear Damages - Recent Developments in the United States*, *Nuclear Inter Jura'81*, Palma de Mallorca, Proceedings 1982, p. 327 et seq.
- (3) The nuclear legislations of Hungary and the German Democratic Republic have also stipulated an unlimited liability; they can, however, be left out of consideration due to the political economic system applying to their nuclear industry. See N. Pelzer, *ibid* p. 12, 13, with further references.
- (4) Cf. von Welck, *ibid* p. 241.
- (5) Shapar, *ibid* p. 332.
- (6) With the same result, G. Butze, *Die gesetzliche Regelung der Haftung für durch Kernenergieanlagen verursachte Schäden und deren versicherungsmäßige Abdeckung in der Bundesrepublik Deutschland*, *Nuclear Inter Jura'79*, Buenos Aires, Proceedings 1981, p. 359.
- (7) With respect to the "omnibus-coverage" system applied in the United States under the Price Anderson Act 1957, as amended, see H.K. Shapar, *Nuclear Indemnity Legislation in the United States*, *Nuclear Law Bulletin* No. 15 (August 1975), p. 51.

- (8) Pelzer, *ibid* p. 11, 12.
- (9) Cf. the Study "Compensation for Nuclear Damage in the OECD Member Countries" published in Nuclear Law Bulletin No. 20 (December 1977), p. 51 to 53; J.M.L. Olaciregui, Civil Liability and Nuclear Law, Nuclear Law Bulletin No. 5 (April 1970) p. 32.
- (10) M. Scheidwimmer, Die Haftung für Atomschäden und ihre Deckung in rechtspolitischer Sicht, Versicherungsrecht 1962, p. 677, 678; Olaciregui, *ibid* p. 27 et seq.
- (11) N. Pelzer, Reasons for Revising the Paris Convention and Objectives, Nuclear Law Bulletin No. 12 (November 1973) p. 47.
- (12) Cf. Study, *ibid* (fn 9) p. 52.
- (13) Cf. e.g. Art 6 (a) and (b) of the Paris Convention (see fn 1); Scheidwimmer, *ibid* p. 678; H. Karr, Künftiges deutsches Atomrecht nach den europäischen Atomhaftungskonventionen, Versicherungsrecht 1966.
- (14) Scheidwimmer, *ibid* p. 680 with further references;
- (15) Exposé des motifs No. 15 para 2.
- (16) Scheidwimmer, *ibid* p. 679, 680; Karr, *ibid* p. 4.
- (17) Cf. W. Breining, Unbeschränkte Haftung schafft nicht automatisch unbeschränkte Deckung, Atomwirtschaft 1980 p. 31; P. Gnam, Die nukleare Zulieferindustrie im Haftungsfreiraum der rechtlichen Kanalisierung, Drittes Deutsches Atomrechtssymposium, Referate und Diskussionsberichte, Köln u.a., 1975 p. 237 et seq.
- (18) Gnam, *ibid* p. 236.
- (19) Butze, *ibid* p. 355; see also Pelzer, *ibid* (fn 11) p. 48.
- (20) U. Fischer, Das neue schweizerische Kernenergiehaftpflichtrecht, SVA Bulletin No. 19 / 1981 p. 31 with further references; with respect to this problem see also Pelzer, *ibid* (fn 11) p. 49 and Gnam, *ibid* p. 235 et seq.
- (21) Official exposé des motifs (amtliche Begründung) of the bill for the 3rd Amendment of the German Atomgesetz, Deutscher Bundestag 7th electoral period, BT-Drucksache 7/2183 p. 25.

- (22) See to the whole, Pelzer, *ibid* (fn 2) p. 27.
- (23) Breining, *ibid* p. 31.
- (24) Pelzer, *ibid* (fn 2) p. 28; J.K. Pfaffelhuber and B. Kuckuck, *Normalisierung von Haftung und Deckungsvorsorge für kerntechnische Anlagen, Atomwirtschaft* 1980. p. 28 et seq.; von Welck, *ibid* p. 242;
- (25) Pelzer, *ibid* (fn 2) p. 12 et seq.:
- (26) Pfaffelhuber / Kuckuck, *ibid* p. 29; H. Getz and H. Steinkemper, *New Trends in European Nuclear Liability Law, Nuclear Inter Jura'81, Palma de Mallorca, Proceedings 1982*, p. 388, 389;
- (27) Cf. *Nucleonics Week-June 2, 1983* p. 5; von Welck, *ibid* p. 242;
- (28) *German Risk-Study Nuclear Power Plants, Phase A (DRS / A, 1978)*, ed. The Federal Minister for Research and Technology, Köln 1979.
- (29) *Ibid* (fn 28) p. 246.
- (30) Cf. Federal Constitutional Court (Bundesverfassungsgericht) in the so called "Kalkar-decision", official case book vol. 49, p. 89 et seq. (142, 143).
- (31) See also Pelzer, *ibid* (fn 2) p. 31.
- (32) Getz / Steinkemper, *ibid* p. 388; Pelzer, *ibid* (fn 2) p. 33 et seq.; Pfaffelhuber / Kuckuck, *ibid* p. 29.
- (33) Cf. Pelzer, *ibid* (fn 2) p. 56 et seq., p. 63 et seq.; Pfaffelhuber / Kuckuck, *ibid* p. 30; von Welck, *ibid* p. 242, 243.
- (34) Pelzer, *ibid* (fn 2) p. 56 with further references.
- (35) Breining, *ibid* p. 31; Pfaffelhuber / Kuckuck, *ibid* p. 30.
- (36) In this way e.g. the statement of the Schweizer Bundesrat with respect to the re-enactment of the "Kernenergiehaftpflichtgesetz (Nuclear Energy Liability Act)" in "Botschaft an die Bundesversammlung vom 10. Dezember 1979" BBL 1980 I, p. 195.
- (37) See also W. Mahlmann, *Revision of the Paris Convention from the German Point of View, Nuclear Inter Jura'77, Florenz, Proceedings* p. 585.
- (38) Cf. Gnam, *ibid*, p. 239 with further references; Pfaffelhuber / Kuckuck, *ibid* p. 29; Study *ibid* (fn 9) p. 76.