

The 21st Century Public Policy Institute
Policy Proposal

Toward the Establishment of a New Compensation System for Nuclear Damages

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Nuclear Policy Issues Committee

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(This report is the English translation of the Japanese report released in Nov. 2013 by the 21st Century Public Policy Institute.)

Executive Summary

Toward the Establishment of a New Compensation System for Nuclear Damages

The 21st Century Public Policy Institute Nuclear Policy Issues
Committee

Nov. 14th, 2013

This report is composed of three parts. Part I explains how Japan's nuclear power operations have evolved, with a focus on historical facts including the context in which the business model of being "privately run under national policy" was established and the historical background of the development of Japan's nuclear damage compensation system, as well as relevant overseas laws and international agreements. Based on the nuclear risks that were revealed in the Fukushima Daiichi Nuclear Power Plant accident as well as the historical context and ongoing discussions concerning the current scheme for addressing such risks (under the Act on Compensation for Nuclear Damages, etc.), Part II summarizes the unresolved issues of the current nuclear damage indemnification system and perspectives for its amendment, with reference to the discussions held at The 21st Century Public Policy Institute Nuclear Policy Issues Committee meetings. Part III "Toward the Establishment of a New Compensation System for Nuclear Damages" is a proposal made independently of the debates held at Committee meetings by a group of members, namely, Project General Manager, Mr. Akio Morishima and Committee members, Mr. Ikufumi Niimi and Mr. Michitaro Urakawa.

Based on this report, Mr. Akihiro Sawa and Ms. Sumiko Takeuchi has compiled a policy proposal "Toward a Comprehensive Solution for Nuclear Policy and Business Challenges" (21st Century Public Policy Institute research project) which we would be more than honored to have our audience also read.

1. The focus of this report

In Japan, electric power has been supplied by private companies that have enjoyed the institutional benefits of tariff regulations based on fully distributed cost (FDC) pricing and general mortgage bonds which enable low-interest financing, as well as regional monopoly which ensures demand. A stable and inexpensive electric power supply is vital to national livelihood and economic development. Requiring large long-term investments, electric power operations are state-run in most countries, with the exception of countries such as Japan and the U.S., where these operations have been assumed by private companies. Furthermore, Japan has been gained worldwide recognition as a “model country of peaceful nuclear use” because it has managed the entire nuclear process, including back end operations¹, mainly through private initiative.

Nuclear power operations are not simply a means of power generation but embrace radioactive material management and energy security and other complex aspects that must be deliberated comprehensively at the national policy level; and therefore, government guidance and support have been considered necessary for its promotion. With government support in various dimensions, including the establishment of a scheme to ensure safe and appropriate operations and the implementation of relevant regulations, as well as the provision of support for local governments hosting nuclear power plants, and technology development, nuclear power operations have developed as a business “privately-run under national policy” in Japan.

A scheme where private companies backed by government support could develop their businesses with flexibility was very beneficial under normal circumstances, but the recent accident at Tokyo Electric Power Company (TEPCO)’s Fukushima Daiichi Nuclear Power Plant (hereinafter, “Fukushima accident”) brought to light the significant disadvantages of an ambiguous sharing of risks and responsibilities between the government and the private sector. In particular, the Act

¹ In nuclear operations, fuel production and power plant construction are referred to as “front end operations,” whereas radioactive waste management, the reprocessing of used fuel and the decommissioning of nuclear reactors are called “back end operations.”

on Compensation for Nuclear Damages (hereinafter, “Nuclear Compensation Act”), which stipulates the scheme for compensating victims of nuclear accidents and sharing the risk of accidents relevant to nuclear power operations, provides for private-sector nuclear power operators to assume unlimited liabilities and for the government to support them. Therefore, primarily and solely liable for all damages, TEPCO is currently supplying its customers with electricity while it compensates the massive number of victims and assumes the costs incurred in the decommissioning and decontaminating operations with the government support stipulated in the Nuclear Damage Compensation Facilitation Corporation Act (“Facilitation Corporation Act”) and the Law Concerning the Special Measures on Coping with Environmental Contamination with Radioactive Substances Released at the Accident of Fukushima Daiichi Nuclear Power Station.

With the establishment of a compensation scheme under the Facilitation Corporation Act, it would seem that a certain degree of stability has been secured in addressing the aftermath of the accident, including energy supply and compensation issues. TEPCO has allocated as many as 10,000 employees in its compensation operations², but many cases are yet to be resolved. In addition, it has become evident that monetary compensations do not promise to restore the local communities fractured by the Fukushima accident. This could be regarded as a fundamental flaw in the current victim reimbursement scheme.

The Nuclear Damage Liability Facilitation Fund (“Facilitation Fund”) had initially estimated that 5 trillion yen would be required for compensation payments and thus set up a support fund by issuing government compensation bonds. However, overall accident-related costs including those for decontamination and the interim storage of contaminated soil are estimated to amount to as much as 10 trillion yen.³ According to estimates announced by the Board of Audit on October 16, 2013, even in the event that 5 trillion yen were subsidized,

² TEPCO “Records of Applications and Payouts for Indemnification of Nuclear Damage” www.tepco.co.jp/en/comp/images/jisseki-e.pdf

³ The Nikkei Shimbun, November 8, 2012 “Uncertainty in Implementation of Support for TEPCO: Government Addresses “10 Trillion” with Caution”

it would take as long as 31 years to recover total costs.⁴ The circumstances have induced the Government to become proactively involved in some aspects of nuclear operations – for example, decommissioning and treating radiation-tainted water. Nevertheless, with the roles of the private and public sectors in dealing with the consequences of a nuclear accident and in continuing nuclear power operations not yet made explicit and demarcated on an ad-hoc basis, operators and other concerned parties are still faced with challenges in assessing the risks of future nuclear power operations.

Moreover, the prospects of future nuclear power operations have become even more obscure with ongoing discussions on the electric power system reforms that could involve the abolishment of conventional schemes that have supported the financing of electricity operations, which require large long-term investment.⁵ One of the reasons that Japan has engaged private companies in electric power operations is, apart from fiscal constraints, the flexibility available in procuring funds through large bank loans, corporate bonds and capital increases. For private electric power companies, the abolishment of tariff regulations (revenue guarantee) based on fully distributed cost (FDC) pricing and the issuance of general mortgage bonds which have enabled low-interest financing, as well as regional monopoly, which has facilitated the ensuring of demand for electricity generated from nuclear power, means that they can expect less major investments to be made in their electric power operations.

In the event that Japan should retain nuclear power operations

⁴ Board of Audit of Japan “Report on the Audit on the Implementation Status of Government Support for Compensations for Nuclear Damages Related to the Tokyo Electric Power Company”

(Summary) www.jbaudit.go.jp/pr/kensa/result/25/pdf/251016_youshi_1.pdf (available only in Japanese)

⁵ The Expert Committee on the Electricity Power Systems Reform Report of February 2013 implied a possibility of changes after a certain period of provisional measures. According to the report, “the further neutrality of the transmission and distribution sector shall be promoted in light of future trends of the financial market; and in terms of financial debts, including general mortgage bonds, and behavioral regulations, the implementation of measures (provisional measures) that will not hinder the procurement of funds required for the stable supply of electricity, while securing the healthy development of electric power operations, such as setting a fair environment for equal competition among operators will be called for.

www.meti.go.jp/committee/sougouenergy/sougou/denryoku_system_kaikaku/pdf/report_02_01.pdf

for a certain period of time, the continuation of operations could become inevitably impossible without an appropriate institutional design that clarifies how the various risks ((i) risk of accident; ii) risk of ex-post policy or regulatory changes; and iii) technological complexity (especially technologies for back end operations, the decommissioning of reactors after accidents and reprocessing)) inherently accompanying the use of nuclear technology can be avoided, dealt with or shared among the parties concerned.

This report focuses on two issues: how we can recover the damages inflicted by a nuclear accident which can victimize a massive number of people and inflict unprecedented damages, such as the destruction of entire communities and how we should design a system for the continued peaceful use of nuclear technology, if that is the decision that Japan makes.

2. Basic structure of the compensation scheme for nuclear damages: the features of Japan's Act on Compensation for Nuclear Damages and the context of its amendment

The Nuclear Compensation Act basically comprises three pillars: i) from the perspective of victim protection, it requires nuclear power operators to assume liabilities (strict liability, concentrated liability, limited immunity) that are more stringent than those usually required in modern law; ii) it requires the securing of financial resources for compensation through private insurance; and iii) it provides that in the event such measures are insufficient, the Government shall provide compensation.⁶ Given the historical context in which countries

⁶ Refer to: Takeuchi, Akio, *Genshiryoku songai nihou no gaiyou* (Outline of Two Laws Concerning Nuclear Damage), *Jurist* No236 (available only in Japanese) www.yuhikaku.co.jp/static_files/shinsai/jurist/J0236029.pdf;

Tanabe, Tomoyuki, M. Maruyama, *Fukushima Daiichi Genshiryoku Hatsudensho Jiko ga Teikishita waga kuni no genshiryoku songai seido no kadai to sono kokufuku ni muketa seido kaikaku no houkousei* (The issues concerning Japan's compensation system for nuclear damages raised by the accident at Fukushima Daiichi Nuclear Power Plant and the direction of system reforms to overcome the challenges), Central Research Institute of Electric Power Industry (2012) ; and other reports. It should also be noted that, for example, Utatsu states in *Genshiryoku mondai no houritsu mondai* (*Legal issues of*

formulated their nuclear compensation schemes in agreement with the U.S.'s demand of its export partners that American nuclear power facility manufacturers, such as General Electric (GE), would not be held liable for any nuclear accidents, the basic institutional principles, including the purpose of relevant laws, are nearly globally common.

Common Principles of Compensation Schemes for Nuclear Damages	
1) Tightening up and concentration of liability	Nuclear power operators are subject to strict liability and limited immunity. In addition, even if an accident should occur due to causes attributable to the facility supplier, the operator shall be solely liable.
2) Scope of application	"Nuclear damages" under a nuclear damage compensation scheme are caused by accidents that are attributable to reactor operations.
3) Mandatory financial security	Compulsory subscription to private insurance and/or indemnity agreement with government to secure the operator's ability to pay
4) Limitation of compensation payments	A maximum liability amount is set for compensation payments so that the operator is not held liable for unlimited sums of money. Japan, Germany and Switzerland have exceptionally not set ceilings, and therefore operators in these countries assume unlimited liability.
5) Government compensation	When operators are not capable of making compensation payments in full, the government compensates for remaining amounts. *Japan's Nuclear Compensation Act does not include explicit provisions about compensation by the government.

3. The features of Japan's Act on Compensation for Nuclear Damages, its origin and amendments

Japan's Nuclear Compensation Act contains no explicit provisions about compensation by the government. A report by the Special Subcommittee on Compensation for Nuclear Accidents, which

nuclear damage compensation) that i) strict liability, ii) limited liability, iii) exclusive liability, and iv) mandatory financial security are the four common principles of liability.

deliberated the design of a compensation scheme for nuclear damage, had explicitly concluded that in the event that compensation costs exceed the insured amounts, the government should assume the remaining costs. However, under Japanese law, operators assume unlimited liability and “the Government shall give a nuclear operator such aid as is required” (Section 16 of the Nuclear Compensation Act) as a result of debate within the Government, or to be more precise, opposition by the Ministry of Finance, and also as indicated by Hoshino (1972) ⁷, the agreement by nuclear power operators to assume unlimited liability in order to increase acceptance among the residents of local communities and governments hosting nuclear power plants.

Given the term stipulated in Section 20, the Nuclear Compensation Act has been amended once every decade. However, only the first amendment involved discussions on such fundamental framework issues as risk-and-burden-sharing between the national government and private nuclear business entities; and therefore, despite indications of fundamental flaws and major changes to the circumstances surrounding nuclear power operations from the timing of the adoption of the Act, Japan ended up addressing the Fukushima accident with the Nuclear Compensation Act maintaining its original structure.

4. Overseas legal systems and international agreements

Of the many overseas legal systems and international agreements that can be informative guides to the Japanese, we summarized information on the U.S. and Germany’s compensation system scheme for nuclear damage and on the Convention on Supplementary Compensation for Nuclear Damage (CSC). The U.S. Price-Anderson Nuclear Industries Indemnity Act (“Price-Anderson Act”) is based on

⁷ Hoshino, Eiichi, Genshiryoku saigai hoshou (Compensation for Nuclear Disasters). Minpo Ronshu Vol.3 (Symposium on Compensation for Nuclear Disasters) . p436; Hoshino, Eiichi, Nihon no genshiryoku songai baisho seido (Japan’s Compensation System for Nuclear Damage) (Japan-Germany Comparative Nuclear Power Law: First Symposium on German Nuclear Power Law)

limited liability, whereas the German law takes an unlimited liability approach. The Price-Anderson Act secures financial protection amounting to the large sum of approximately 1.2 trillion yen through a 375-million-dollar liability insurance and a 12.22-billion-dollar (11.19 billion dollars $\times 1.05^8 \times 10^4$ reactors) mutual insurance arrangement. The mutual insurance arrangement takes an ex-post levy collection approach which contributes not only to securing a large sum of financial protection but also to increased safety through nuclear safety peer reviews conducted among operators.

The Price-Anderson Act provides that in the event of a nuclear incident involving damages in excess of the limits established by law, payment should be required of as wide a range of parties as possible; and therefore, strictly speaking, it could be interpreted that the Price-Anderson Act does not actually limit the liability of operators as it has generally been considered to do. However, unlike the Japanese system of unlimited liability, placing a cap - even if it may be provisional - on the amount of liability an operator has to face has the effect of reducing financial risks and assuring operators that they will be able to secure the necessary funds for investing in nuclear power plants. Therefore, the U.S. system is better than that of Japan from the perspective of promoting the sound development of nuclear business. Moreover, its provisions on burden-sharing among the President, Congress, the courts, the Nuclear Regulatory Commission (NRC), etc. and the relevant procedures to be taken when compensation payments are likely to surpass the pooled amount, and those on the formulation of a distribution plan for the allocation of available funds, as well as the call for the use of private insurance company services and functions to the maximum extent possible in dealing with liability claims should serve as good reference for Japan.

German law does not allow for any immunity on the part of operators. A 1985 amendment transformed its nuclear compensation system from limited liability to unlimited liability. However, given the provision that “where legal liabilities to pay compensation for damage resulting from an incident are expected to exceed the amount available to satisfy such

⁸ Includes legal fees equivalent to 5% of levied insurance fees. (Section 170(e)(1)A))

liabilities, their apportionment and the procedure to be observed in this context shall be governed by an act or, pending such act, by statutory ordinance” (German Atomic Energy Act Section 35 paragraph (1)), it could be understood to require government intervention, particularly in terms of distribution and procedures. The deliberations which took place at the time of the Atomic Energy Act’s establishment also support this interpretation. It should be noted that the Swiss Nuclear Energy Liability Act (discussed in detail in Part II), which also does not grant exemption from liability, includes provisions for major disasters which stipulate that in the event the damage exceeds the amount covered by financial security and government compensation, the federal government shall establish a compensation framework and decide the basic principles regarding compensation to victims by ordinance.

A close observation of different compensation schemes brings us to the conclusion that those based on limited liability and others based on unlimited liability are not completely contradictory. Given the impossibility to pool unlimited amounts for compensation under a scheme founded on unlimited liability, the reasonable idea is that government intervention is supposed to be envisaged for cases where total damages are likely to significantly exceed the financial security amount. On the other hand, even under a limited liability scheme, refusal to compensate for damages surpassing a certain upper limit would not be politically nor socially accepted (unless the entire country is in a devastating state and there is no rationale to provide relief only to victims of nuclear disaster); and therefore, it is only natural to assume that additional payments will be required of operators and other concerned parties based on the judgment of the government, President or the legislature. This consequently places the predictability of costs on the part of operators and the flexibility of the compensation scheme in a trade-off. However, the attribution of liability should be determined by taking into consideration all factors, including corporate, industrial, economic and political circumstances, based on the fundamental principle of not compelling helpless victims to meekly accept damages. Nuclear damages are, in this sense, a matter of

political judgment rather than a legal matter.⁹ It is important that the roles of the executive and legislative branches of government and relevant procedures are explicitly predetermined by law in order to secure the transparency of the process.

5 . The significance and challenges of addressing the Fukushima accident (under the Nuclear Damage Compensation Facilitation Corporation Act)

The Fukushima accident aroused heated debate over whether or not TEPCO would be lawfully exempted from liability pursuant to an exceptional clause in Section 3 paragraph 1. The Facilitation Corporation Act was then established, attributing primary liability to TEPCO. Support from the government is covered by payments from the Facilitation Fund to the national treasury (Facilitation Corporation Act, Section 59 paragraph 4), which will, in principle, be repaid in the future by TEPCO via the Facilitation Fund. This public support scheme is more in the character of an emergency bridge loan than a relief measure for TEPCO using public funds or government compensation for nuclear damage.

The advantages of promptly implementing this scheme were: 1) the prevention of panic among victims; 2) the securing of funds for decommissioning and the provision of a stable supply of electricity; and 3) positive effects on financing for other electric power companies. Its shortcomings involve: 1) the deterioration of TEPCO as a corporate body (its degraded problem-solving capacity, in particular); 2) the incompatibility with electric power system reforms (concerns that the new scheme may not be based on a system where revenue and profit is guaranteed by regional monopoly and FDC pricing; 3) questions from the perspective of minimizing public burden; 4) the lack of versatility as a compensation scheme for nuclear damages; 5) questions

⁹ Lawmaker Takeo Tanaka and sworn witness Sakae Wagatsuma appropriately engaged in exchange on the very subject at the 14th meeting of the Special Committee for Science and Technology Promotion of the 38th Diet session.
kokkai.ndl.go.jp/SENTAKU/syugiin/038/0068/03804260068014a.html

concerning the legal justice of having other operators shoulder compensation costs through a levy; and 6) the limits to victim relief based on monetary compensation pursuant to tort systems.

6 . The risks of nuclear operations revealed in the Fukushima accident

Many risks of nuclear operations, including those of which had already been envisaged, were revealed in the Fukushima accident. These are: 1) the costs involved in the occurrence of a nuclear accident, namely, i) compensation costs, ii) additional fuel costs for increased thermal power generation, iii) costs incurred in terminating the accident and those required for the decommissioning of reactors, and iv) growing difficulties in continuing operations as a result of these increased costs; 2) the increased costs accompanying ex-post alterations in policy and regulations, namely, i) increased fuel costs due to the stoppage of nuclear power plants, ii) costs incurred in meeting the requirements of new regulations, iii) growing difficulties in continuing operations due to these increased costs (in particular, for The Japan Atomic Power Company (JAPC); and 3) given the technological challenges of the back end process, i) increased deficits due to delayed work on the part of JAPC, ii) increased costs, required to address such delays, and iii) growing difficulties in continuing operations due to increased costs and problems in determining a final disposal site for nuclear waste.

In May 2006, the Subcommittee on Electric Power Deregulation and Nuclear Power, established under the Nuclear Power Subcommittee of the Electric Utility Industry Subcommittee under the Advisory Committee for Natural Resources and Energy, published a report¹⁰ on the impacts to be imposed on electric power sources such as nuclear power that require large long-term investment in the face of

¹⁰ Draft Report of the Subcommittee on Electric Power Deregulation and Nuclear Power www.meti.go.jp/committee/materials/downloadfiles/g60519a03j.pdf

Report of the Subcommittee on Electric Power Deregulation and Nuclear Power (Outline) www.meti.go.jp/committee/materials/downloadfiles/g60607f03j.pdf

advancements made in deregulating the electric power sector. It analyzed from the perspectives of finance, location and demand, whether Japan would be able to maintain the nuclear ratio provided for in the Nuclear Policy Outline adopted by the Government in the event that operators were left to make investment decisions under open competition, and indicated that the following issues would have to be addressed:

- 1) lowering and dispersing investment risks unique to nuclear power generation
- 2) decreasing and leveling initial investments and decommissioning costs
- 3) promoting wide-area operations
- 4) visualizing the advantages of nuclear power generation

OECD has also analyzed the difficulties in procuring funds for nuclear power in a competitive electric power market.¹¹ In the U.S., the shale gas revolution has undermined the competitiveness of nuclear power, thereby triggering the freezing of nuclear energy plans, the decommissioning of reactors, and the corporate withdrawal of operators (France's EDF)¹². The U.K., on the other hand, is rediscovering the significance of nuclear power generation and has decided to introduce a Feed-in-Tariff with Contracts for Difference (FIT-CfD) scheme as a policy measure to ensure that investments made in nuclear power generation can be recovered.¹³

¹¹ Nuclear Power in Competitive Markets
www.oecd-nea.org/ndd/reports/2000/nea2569-dereg.pdf

¹² Coverage includes: The Nikkei Shimbun August 6, 2013 "The 'economic efficiency' barrier of U.S. nuclear plants"

¹³ On October 21, 2013, the U.K. Department of Energy and Climate Change (DECC) and energy company EDF Energy (subsidiary of France's EDF) announced that they had reached agreement on a plan to build two 1.6 million kW reactors in Hinkley Point C. The strike price is has been set at 89.5 pounds per MWh and will be generally guaranteed over 35 years from the point of beginning power generation.
(www.gov.uk/government/news/hinkley-point-c)

7 . The problems of the current nuclear compensation system and ideas for reform

Based on the discussions held at Committee meetings and ideas provided by concerned parties, this section is divided into three parts to identify the schemes that must be reformed or improved in order to retain nuclear operations as well as the direction in which they should be taken, while reducing the risks and uncertainties of nuclear power generation and adequately preparing for major disasters.

1) Limiting risks and ideas for risk-sharing

- i) Problems arising from the ambiguity of the definition of “nuclear damage”

This point is elaborated in Chapter 2 of Part III. Many Committee members indicated that the inclusion of pure economic loss (damage induced by harmful rumors) and environmental damage (decontamination) in “nuclear damages” should be carefully deliberated, considering the impact such conclusions would have on theories of tort law. It should be noted that the Committee does not take the position of denying any compensation for these damages, but instead believes that such items should be considered under a scheme separate from a compensation scheme for nuclear damages based on tort law.

- ii) Considerations on increasing the financial security amount

The Fukushima accident revealed that the current financial security amount was insufficient. Then, to what extent could the amounts covered by private insurance contracts be increased? Although precise estimations cannot be made without detailed premises, it has been suggested that a maximum of 200 billion yen would be the ceiling amount to enable the stable provision of insurance. We also explored the possibility of increasing the financial security amount by non-insurance-based means, including the ex-post mutual insurance scheme under the U.S. Price Anderson Act, in which operators are assessed a share of the exceeding amounts, as well as procuring funds

from the capital market, that is, the formulation of a nuclear catastrophe bond. Committee members pointed out that if a nuclear catastrophe bond were to be formulated, high interest rates would be required in order for it to be appealing to investors, but that in reality, given the requirement to ensure information transparency to investors and to disclose risk quantification and analysis processes, we would face the fundamental issue of not being able to present substantial reasons for setting certain interest rates because nuclear accidents do not always occur as a consequence of earthquakes and tsunamis exceeding a given level. Although catastrophe bonds, in general, are being issued in growing numbers, nuclear catastrophe bonds have yet not been issued anywhere in the world, presumably because the challenges described above are yet to be overcome.

iii) The problems of unlimited liability for operators

Committee members expressed that not limiting the liability of operators was inconsistent with the purpose of the Nuclear Compensation Act (the sound development of nuclear power business), and raised concerns for increased public burden through electricity tariff raises, the impairment of stable power supply, and potential negative impacts on the financing of electric power operations and on the stock market. However, fundamentally, “under modern civil law, a company is recognized its right to conduct unregulated activities, while naturally, it is simultaneously required to shoulder all of the costs incurred by the damages attributable to it.”¹⁴ In addition to discussions regarding the legal justice of Government compensation, we identified the issues that would need to be considered if a scheme based on limited liability were to be adopted:

- i) the infringement of a victim’s property rights
- ii) a moral hazard in association with safety
- iii) a distribution plan for compensation funds
- iv) the reinstatement of operations

¹⁴ Kanazawa, Yoshio, “Kojin no songai baishou sekinin ni taisuru kokka no hokannteki sayou (The State’s Complementary Function in a Person’s Liability for Damages)”

v) the inhibitory effect on the of foreign capital in nuclear operations

In particular, in terms of the reinstatement of operations (iv), there have been calls among stakeholders for the clarification of responsibility, and assertions that the fundamental principle of capitalism should be observed are reasonable to a certain extent. However, various problems are likely to occur: a) the victims' right to claim compensation for damages would be subordinate to the bond-related lien or security interest in reorganization; b) the "reconstruction" of TEPCO under the Corporate Reorganization Act was initially judged to be impossible at the breakout of the accident because the costs required for compensation and decommissioning were then unpredictable; c) a body to assume liability for damages must be secured; d) the public is faced with burdens amounting to several trillion yen, including the 1 trillion yen already injected by the government; e) the funds required may impair the allocation of necessary funds for supplying electricity and addressing the aftermath of the accident; f) financing costs may rise as a result of other nuclear operators' loss of credibility; and g) the morale of electric power supply and decommissioning operations may be impacted. The framework of the Facilitation Corporation Act not being a versatile compensation scheme for nuclear damage, other options should also be pursued. We also considered the alternative of applying corporate reorganization procedures, the challenges and possible countermeasures regarding which are summarized below:

A proposal is made for each challenge, followed by relevant concerns.

Proposal 1: Potential treatment of victims' right to seek damage compensation as a common benefit claim¹⁵ pursuant to permission of the court.

¹⁵ A claim regarding the costs required for rehabilitation procedures and costs indispensable to the continuity of operations, which are incurred after bankruptcy proceedings based on Civil Rehabilitation Law are initiated. Even in the event of liabilities which occurred previous to the decision of initiation, costs indispensable to the continuity of operations can be common benefit claims, provided permission is obtained from the court and supervisor. Common benefit claims are categorized as claims that are entitled to preferential receipt of reimbursement and are of the same rank as priority bankruptcy claims. (excerpt from: www.exbuzzwords.com/static/keyword_4894.html)

(Concerns)

- Can the requirements for court permission that such treatment is indispensable for reorganization and that the equity principle is not undermined be met?
- As no order of priority is determined among common benefit claims, would it not be necessary to grant rights to receive preferential payment¹⁶ in the reorganization procedures, in order to avoid conflict with legal common benefit claims such as tax collection rights?

Proposal 2: Fund procurement would still be possible even if the “general mortgage clause” which secures bonds with blanket mortgage, were to be deleted.

(Concerns)

- In order to avoid confusion in the corporate bond market, the rights granted to outstanding bonds under existing systems should take precedence; and therefore this option would not be applicable in addressing the Fukushima accident.
- It would be technically possible to issue new bonds without general mortgage, but the widening of spreads observed after the accident despite an effective “general mortgage clause” raises concerns over how to mitigate the negative impacts of higher financing costs and impaired stability in procuring funds.
- The same can be said regarding loans from the Development Bank of Japan (DBJ).

Finally, Chapter 3 of Part III discusses the limits to liability for dangerous products, a theory which has developed under German law.

iv) Confusion regarding the liability of operators

The Fukushima accident aroused heated debate over whether or not operators would be legally exempted from liability pursuant to the exceptional clause in Section 3 paragraph 1. The experiences in the Fukushima accident revealed that “the comprehensive and flexible

¹⁶ It was noted that preferences should be placed on different common benefit claims, thereby discriminating “preferred common benefit claims”.

phrase, ‘exceptionally grave natural disaster’¹⁷ could ignite confusion. It has also been indicated that even if operators were to be exempted from liability, it would be impossible to conclude that victims would be denied indemnification, and hence an established Government compensation scheme would have to be available; however, given the ambiguity of the Government’s role, it is structurally difficult under Japan’s Nuclear Compensation Act to exempt operators from liability¹⁸. In order to overcome these challenges, the Committee collected information on German and Swiss nuclear compensation laws, both of which do not contain any clauses for exclusion from liability¹⁹. In our report we have summarized the current status of nuclear power operations and the legal system for compensation for nuclear damages in Switzerland, whose scheme of combining of liability insurance and government compensation is simpler and clearer than that of Germany.

v) Issues regarding exclusive liability of the operator

The Committee discussed indications that although it is not realistic to hold manufacturers (suppliers) liable for damages, they should at least be required to cooperate in dealing with an accident or to provide information. The possibility of applying the Act Concerning State Liability for Compensation was also discussed. Regarding the latter issue, in light of the role that the Government has played in nuclear operations – that nuclear operations have been placed highly under Government control and that even after the accident, the Nuclear Emergency Response Headquarters and other various Government bodies were responsible for announcing evacuation instructions, establishing food safety standards and implementing shipping restrictions after the accident – the application of claims for state

¹⁷ Takeuchi, Akio, Jurist 236 (tnihei.tumblr.com/post/5661848585/36-10-15-31-236)

¹⁸ Tanabe, Tomoyuki, M. Maruyama, Fukushima Daiichi Genshiryoku Hatsudensho Jiko ga Teikishita waga kuni no genshiryoku songai seido no kadai to sono kokufuku ni muketa seido kaikaku no hokousei (The issues concerning Japan’s compensation system for nuclear damages raised by the accident at Fukushima Daiichi Nuclear Power Plant and the direction of system reforms to overcome the challenges), Central Research Institute of Electric Power Industry (2012)

¹⁹ Based on information provided by Mr. Noboru Utatsu of Sompo Japan Nipponkoa Insurance Services Inc., material published by Japan Atomic Industrial Forum, Inc. (JAIF) (www.jaif.or.jp/ja/seisaku/genbai/genbaihou_series43.html), and Swiss Info (www.swissinfo.ch/jpn/detail/content.html?cid=34224944)

redress should also be considered. Concerning whether or not the principle of exclusive liability, which is stipulated in Section 4 of the Nuclear Compensation Act, exempts the Government from liability for damages, the general interpretation is that it does not.

vi) The necessity for considerations on prescriptions

Since the Nuclear Compensation Act contains no provisions regarding extinctive prescription, the former clause of Article 724 of the Civil Code on restriction of the period of the right to demand compensation for damages in tort is applied; and therefore, the dominant interpretation is that if a victim does not exercise his/her right of claim within three years from the time when he/she comes to know of the damages, the right to demand compensation for damages will be extinguished by the operation of prescription. On May 29, 2013, the Government enacted an act on special measures concerning the interruption of prescription (Law on Special Measures Concerning the Interruption of Prescription Concerning the Use of Procedures for Mediation of Settlement by the Dispute Reconciliation Committee for Nuclear Damage Compensation on Disputes Regarding the Compensation of Nuclear Damages Related to the Great East Japan Earthquake), under which, in order to interrupt prescription, a victim must make an appeal to the Nuclear Damage Compensation Dispute Resolution Center (ADR Center) for mediation of settlement before the termination of the period of prescription and bring an action to the court within one month from the breakdown of a mediation of settlement. Furthermore, leaving a possibility that the effect of interruption of prescription may not apply to items that were not included in the original appeal, the law has not succeeded in providing a fundamental resolution. According to the media, the Liberal Democratic Party (LDP) intends to extend the period of prescription for the right of claim for nuclear damages to ten years in the extraordinary Diet session to be convened in October this year.²⁰ Given the wide diversity of responses required according to the scale of accidents, it

²⁰ For example, TOKYO Web, September 22, 2013, etc. At the timing of compiling this report (as of October 28, 2013) details are yet to be announced.
www.tokyo-np.co.jp/article/feature/nucerror/list/CK2013092202100005.html

may be more reasonable to address prescription issues when making decisions on the scheme to deal with the aftermath of an accident. However, the provisions of the current Nuclear Compensation Act, which compels the Government to request flexibility on the part of the victimizer, should be amended in the future, drawing on the results of investigations on the Fukushima accident.

2) Addressing major nuclear disasters

Many Committee members stated that the Fukushima accident destroyed “places of being,” such as homes, workplaces and local communities and that many evacuees are seeking the reconstruction of these lost “places of being.” Interviews conducted in the Town of Namie by a group of Committee members also revealed many calls for the reconstruction of local community. With view to the fact that large-scale disasters such as the Fukushima accident cause damages that are not reimbursable with money and that these damages hinder the reconstruction of the victims’ livelihoods, efforts by the national or local government to revitalize the local community must be made at an early stage after an accident. Also, a Government compensation scheme for damages must be formulated separately from tort law-oriented measures, based on, for example, the Land Expropriation Act, which is applied in dam development, in order to reconstruct villages and communities.

3) The optimal legal system for nuclear power operations

After the Fukushima accident, questions were raised about the fact that no indications have yet been made about the operator, TEPCO’s infringement of national safety regulations and about the missing link between compliance with the Reactor Regulation Act and judgment of liability under the Nuclear Compensation Act. Despite the importance for nuclear power operators to proactively advance and further their efforts to improve safety levels, Japan’s current legal system for nuclear operations is fragmented, with safety regulations, the compensation system and disaster prevention schemes all designed individually.

Upon revising the current compensation system for nuclear

damage, a comprehensive picture of the entire nuclear risk management framework must be envisioned, with the acknowledgement that it is a part of a larger bundle of risk coverage and management measures for the use of nuclear power, which secure mutual and complementary role and coordination with various institutions, including nuclear safety regulations, disaster prevention schemes, community reconstruction support schemes and international nuclear cooperation. The agenda is to determine which reimbursements to give precedence to within the limits of the resources available, how to prevent the damage from spreading, how to revitalize local communities and how to address these issues promptly and realistically.

We believe that Japan should consider acceding to international treaties concerning nuclear damages, or more precisely, to the CSC²¹. The significance of becoming a party to the CSC would be:

- i) When a domestic manufacturer exports a nuclear power plant, liabilities for damages in any nuclear accident that occurs in the importing country would be held exclusively by the nuclear power operator of the importing country, provided that the importing country is also a party to the CSC. Therefore, Japan would be able to avoid business risks.
- ii) In the event that liabilities are in excess of 300 million SDR²² (approximately 45 billion yen), the country in whose territory the accident occurred is awarded supplementary funding based on contributions from all parties to the Convention.
- iii) Jurisdiction over actions concerning the nuclear damage of a nuclear accident that occurs in Japan will lie only with Japanese courts, even in the case of transboundary damages in other countries.

²¹ The significance and challenges of becoming a party to CSC can be found in “Anata ni shittemoraitai genbai seido 2012 ban (A Guide to the Compensation System for Nuclear Compensation 2012), JAIF, P198- and “Genshiryoku songai no hokanteki hosho ni kansuru jouyaku: kakujou no kaisetsu oyobi houteki mondaiten no kentou (Convention on Supplementary Compensation for Nuclear Damage: An interpretation of articles and studies of legal issues)” Japan Energy Law Institute, November 2012 (www.jeli.gr.jp/report/jeli-R-126@2012_11_CSC.pdf); and “Genshiryoku songai no hokanteki hosho ni kansuru jouyaku ni tsuite (Convention on Supplementary Compensation for Nuclear Damage)” Office for Compensation for Nuclear Damage, Ministry of EducationCulture, Sports, Science and Technology , November 2011 (www.jeli.gr.jp/report/jeli-R-126@2012_11_CSC.pdf)

²² According to the exchange rate as of September 30, 2013, 1SDR=1.534080USD

Apart from these advantages, the following potential challenges should also be considered:

- i) Clarifying who would shoulder the contributions to the fund and how it would be done
- ii) Addressing research reactors and other facilities with only small mandatory financial security amounts
- iii) Jurisdiction issues (Japan will have to accept the requirement that in the event that Japan is affected by damages caused by a nuclear accident that occurred in another country, pursuant to the principle of concentration of jurisdiction, Japanese citizens must take legal action in the country in whose territory the accident occurred.)

8. Toward the establishment of a new compensation scheme for nuclear damages

Part III contains a proposal made by Project General Manager, Mr. Akio Morishima and Committee members, Mr. Ikufumi Niimi and Mr. Michitaro Urakawa, “Toward the Establishment of a New Compensation System for Nuclear Damages”. Chapter 1 describes the basic concept of damage compensation law in the context of laws of civil society which support market economy. While the main purpose of damage compensation law lies in the compensation of damages suffered by victim, it also includes consideration for the individual’s freedom of action in society. Requiring “negligence” on the part of the actor in determining liability is one such aspect, and even under strict liability, the limitation of liability ensures actors foreseeability. We also discussed adequate causation, which sets a certain limit to the categories and scope of damage compensation.

Chapter 2 elaborates further on the categories and scope of damages to be compensated which are briefly explained in Chapter 1. In the Fukushima accident, compensation was acknowledged for unconventional categories of damage, such as those business losses and damage induced by harmful rumors, which had never before been addressed in tort compensation, but have been considered to fall within the limits of adequate causation in the Dispute Reconciliation

Committee's guidelines. With reference to international debate, including ongoing discussions in the U.S and the U.K., it should be noted that acknowledging compensation for these categories of damage would mean that the scope of compensation will exceed the limits of foreseeability. Chapter 3 discusses the relationship between strict unlimited liability and government compensation. In Germany, whose Atomic Energy Act also adopts a strict and unlimited liability system, it had been deliberated that in the in the event of major damages that exceed a certain amount available to satisfy such liabilities,, the State should consider providing appropriate government compensation, acknowledging the incident as a national disaster that cannot be overcome by means of civil liability. The Swiss law also provides for intervention by Parliament in the event the damages exceed a certain amount covered by financial security. As clarified in Part II, there are major limitations to compensating for damages through individual procedures under the current Nuclear Compensation Act. Therefore, we propose the establishment of an administrative compensation system similar to the Law Concerning Pollution-Related Health Damage Compensation and other Measures that will function separately but concurrently with the existing damage compensation system under the current Nuclear Compensation Act. Furthermore, Chapter 4 proposes a fundamental revision of the current Nuclear Compensation Act, which does not assume large-scale nuclear accidents such as the recent accident caused by TEPCO that will impose a diversity of damages upon a massive number of victims. Therefore, we propose a new amendment to the Nuclear Compensation Act based on recent experiences. The scheme for pooling amounts for compensation should be designed in accordance with the U.S. Price-Anderson Act, and therefore require nuclear power operators to make additional payments backed by governmental support in the event of an emergency. If the Nuclear Compensation Act aims to "contribute to the sound development of the nuclear business" and to "protect persons suffering from nuclear damage," it is insufficient under the current system to simply impose strict unlimited liability on operators while the Government only provides loans Facilitation Fund by issuing government bonds. Furthermore, the law should provide for the establishment of an administrative committee that manages compensation procedures and supervises the categories of damages, compensation amounts and

payment procedures, and for the right to bring an action to the court in the event that a victim is dissatisfied with the treatment provided by the committee.

Chapter 1 and 4 was contributed by Project General Manager, Mr. Morishima, Chapter 2, by Committee members, Mr. Niimi, and Chapter 3, by Mr. Urakawa.

We hope that this report will contribute to the improvement of our country's scheme for compensating victims of nuclear disaster and that it contributes to the sound development of nuclear power operations in the event that Japan decides to sustain them. We would also like to extend our prayer to the victims of the Great East Japan Earthquake and the Fukushima accident in hope of their early recovery from the disasters experienced.

*This report is a research result of the 21st Century Public Policy Institute, and does not show the view of the Keidanren.

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Part I

The Historical Context of Nuclear Operations and Nuclear Damage Compensation in Japan

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Chapter 1 Introduction

1. The purpose of this study and the structure of the report

In Japan, electric power has been supplied by private companies that have enjoyed the institutional benefits of tariff regulations based on fully distributed cost (FDC) pricing and general mortgage bonds which enable low-interest financing, as well as regional monopoly, which ensures demand. A stable and inexpensive electric power supply is vital for stable national livelihood and economic development. Requiring large long-term investments, electric power operations are state-run in most countries, with the exception of rare examples such as Japan and the U.S., where these operations have been assumed by private companies. Japan has gained worldwide recognition as a “model country of peaceful nuclear use” because it has managed the entire nuclear process, including back end operations²³, mainly through private initiative.

Nuclear power operations are not simply a means of power generation but a complex issue embracing radioactive material management and energy security among other aspects that must be deliberated comprehensively at the national policy level; and therefore, government guidance and support have been considered necessary for its promotion. With government support in various dimensions, including the establishment of a scheme to ensure safe and appropriate operations and the implementation of relevant regulations, as well as

²³ In nuclear operations, fuel production and power plant construction are referred to as “frontend operations,” whereas radioactive waste management, the reprocessing of used fuel and the decommissioning of nuclear reactors are called “back end operations.”

the provision of support for local governments hosting nuclear power plants and technology development, nuclear power operations have developed as a business “privately-run under national policy” in Japan²⁴.

A scheme where private companies backed by government support could develop their businesses with flexibility was very beneficial under normal circumstances, but the recent accident at Tokyo Electric Power Company (TEPCO)’s Fukushima Daiichi Nuclear Power Plant (“Fukushima accident”) brought to light the significant disadvantages of an ambiguous sharing of risks and responsibilities between the government and the private sector. In particular, the Act on Compensation for Nuclear Damages (“Nuclear Compensation Act”), which stipulates the scheme for compensating victims of nuclear accidents and sharing the risks of accidents relevant to nuclear power operations, provides for private-sector nuclear power operators to assume unlimited liabilities and for the government to support them. Therefore, primarily and solely liable for all damages, TEPCO currently supplies its customers with electricity while it concurrently compensates the massive number of victims and assumes the costs incurred in decommissioning and decontaminating operations, supported by the government aid stipulated in the Nuclear Damage Compensation Facilitation Corporation Act (“Facilitation Corporation Act”) and the Law Concerning the Special Measures on Coping with Environmental Contamination with Radioactive Substances Released at the Accident of Fukushima Daiichi Nuclear Power Station.

With the establishment of a compensation scheme under the Facilitation Corporation Act, it would seem that a certain degree of stability has been secured in addressing the aftermath of the accident, including energy supply and compensation issues. However, in the thirty months since the accident, it has not been successful in restoring

²⁴ Comment made by Toshimitsu Motegi, Minister of Economy, Trade and Industry at the Budget Committee meeting of the House of Representatives held on May 13, 2013: “The private and public sectors have shared roles in nuclear policy, which has been promoted with private businesses assuming the operation of nuclear power plants and the Government establishing a scheme to secure the safety of nuclear power plants and appropriate business operation, implementing regulations and deciding the future direction of nuclear policy.”

the victims' livelihoods and its drawbacks as a victim compensation scheme have been brought to light. Furthermore, exposure of the ambiguity of the nuclear power operation-related risk-sharing scheme could threaten the sound development and sustenance of nuclear operations. In light of these circumstances, the government has become proactively involved in decommissioning and decontamination operations²⁵, but with the allocation of burdens regarding nuclear accidents and the continuity of nuclear operations still not clarified, risk assessment remains a challenge for operators and other concerned parties. As undermentioned, the ongoing debate on electric power system reforms has made prospects for nuclear operations increasingly vague.

The 21st Century Public Policy Institute Nuclear Policy Issues Committee, with a membership of prominent academics whose names are listed at the beginning of the report, discussed Japan's nuclear compensation system and operational framework based on a wide range of expertise provided by concerned parties, including nuclear operators. It had two purposes: to propose improvements to the current compensation scheme in order to enable the prompt compensation of those victimized in the Fukushima accident and to deliberate the design of a renewed nuclear damage compensation scheme that would contribute to the sound development of nuclear business.

This report comprises three parts. Part I explains how nuclear

²⁵ Statement made by Prime Minister Shinzo Abe at House of Representatives Budget Committee meeting on May 13, 2013: "It is wrong to hold TEPCO entirely responsible [...] for the accident at the Fukushima Daiichi Nuclear Power Plant. I believe the Government should come forward to assume the responsibilities that we ought to assume. For example, the Government should be sure to take care of funds required for research on decommissioning."

Statement made by Prime Minister Shinzo Abe at House of Representative plenary session on October 17, 2013: "We will not leave this solely in the hands of TEPCO. The Government will come out in front to firmly assume its responsibilities."

On September 3, 2013, the Nuclear Emergency Response Headquarters decided that the Government should come forth to address radiation-tainted water issues and that 47 billion yen of public funds would be injected (Website of the Nuclear Emergency Response Headquarters: www.kantei.go.jp/jp/singi/genshiryoku).

If the act for special measures for addressing radiation-tainted water issues currently under deliberation is legislated, the government will assume the costs for contaminated water-related operations, which will be supervised directly by the competent minister. Government funds to be injected in contaminated water treatment under direct supervision of minister: LDP Research Commission to propose special legislation, *Sankei News* sankei.jp.msn.com/politics/news/130920/plc13092021350015-n1.htm

power operations have evolved in Japan, with a focus on historical facts including the context in which the business model of being “privately run under national policy” was established, the historical background of the development of Japan’s nuclear damage compensation system, and relevant overseas laws and international agreements. As Part I was compiled with the intention of providing background information to support future discussions, readers who wish to capture an overall idea of the current situation and challenges are advised to begin with Part II, which summarizes the unresolved problems regarding the current nuclear damage compensation system and perspectives for amending its legal framework. Part II begins with an elaboration of the risks related to nuclear operations that were revealed in the Fukushima accident as well as the historical context and ongoing discussions concerning the current scheme for addressing such risks (under the Act on Compensation for Nuclear Damages, etc.) and refers to the discussions held at The 21st Century Public Policy Institute Nuclear Policy Issues Committee meetings. It should be noted that some discussions have been duplicated in Part I and Part II for those readers who may not read both parts.

Part III “Toward the Establishment of a New Compensation System for Nuclear Damages” is a proposal compiled by a group of Committee members, namely, Project General Manager, Mr. Akio Morishima and Committee members, Mr. Ikufumi Niimi and Mr. Michitaro Urakawa. Chapter 1 describes the basic concept of damage compensation law in the context of laws governing civil society which provide the framework for market economy.

Chapter 2 elaborates further on the categories and scope of damages which should be compensated for. In the aftermath of the Fukushima accident, compensation was acknowledged for categories of damage, such as those from business loss and harmful rumors, which had hardly been discussed in tort law before, but have been considered to fall within the limits of adequate causation in the Dispute Reconciliation Committee for Nuclear Damage Compensation’s guidelines. With reference to debates in the U.K. and U.S., it points out that including these categories among liable damages would take the scope of compensation beyond the limits of predictability. Chapter 3

discusses the relationship between strict and unlimited liability and government compensation. In terms of the TEPCO Fukushima accident, there are major limitations to compensating for damages through individual procedures under the current Nuclear Compensation Act. Therefore, the establishment of a separate but concurrent administrative compensation process, such as that under the Law Concerning Pollution-Related Health Damage Compensation and other Measures, is proposed. Chapter 4 goes on to propose a fundamental amendment to the current Nuclear Compensation Act. The current scheme of having operators bear strict and unlimited liability while the government just provides loans to the Nuclear Damage Liability Facilitation Fund by issuing government bonds is inadequate in fulfilling the aims of the Nuclear Compensation Act, namely “the sound development of nuclear power business” and “to protect persons suffering from nuclear damage.” Furthermore, the law should provide for the establishment of an administrative committee that manages compensation procedures and supervises the categories of damages, compensation amounts and payment procedures, and for the right to bring an action to the court in the event that a victim is dissatisfied with treatment by the committee.

Chapters 1 and 4 were contributed by Project General Manager, Mr. Akio Morishima, Chapter 2, by Committee member, Mr. Ikufumi Niimi, and Chapter 3, by Mr. Michitaro Urakawa.

Based on the discussions at the Committee meeting, Mr. Akihiro Sawa and Ms. Sumiko Takeuchi have compiled a policy proposal “Toward a Comprehensive Solution for Nuclear Policy and Business Challenges” (a 21st Century Public Policy Institute research project) which we would be more than honored to have our audience also read. We hope that this report will contribute to the improvement of Japan’s scheme for compensating victims of nuclear disaster and that it will contribute to the sound development of nuclear power operations in the event that Japan decides to retain them.

2. Understanding the issue (Damages from the Fukushima accident and the current status of nuclear operators)

Thirty months are about to pass since the Great East Japan Earthquake and the Fukushima accident. However, approximately 102 thousand people are still under evacuation from the official evacuation zone and approximately 146 thousand people from Fukushima Prefecture as a whole²⁶ are suffering in the aftermath of the Fukushima accident. As of October 23, 2013, the Government has provided 3 trillion 96.4 billion yen (in loans) through the Nuclear Damage Liability Facilitation Fund (“Facilitation Fund”) to TEPCO²⁷, has contributed 1 trillion yen to increase TEPCO shares, and has spent 1.3 trillion yen in decontamination (as of fiscal 2013, likely to be charged to TEPCO in the future). The Government has also assumed 112.5 billion (100 billion yen in fiscal 2011-2013 and 12.5 billion yen in budget requests for fiscal 2014) as decontamination costs, with TEPCO scheduled to assume 950 billion yen. According to the National Institute of Advanced Industrial Science and Technology (AIST), the decontamination costs alone will amount to a maximum of 5.13 trillion yen.²⁸ Furthermore, the Government has recently decided to provide 47 billion yen for the treatment of radiation-tainted water. Based on initial estimates of compensation costs, the Facilitation Fund was allocated government compensation bonds of 5 trillion yen, but overall accident-related costs, including those for decontamination and the interim storage of contaminated soil, are estimated to amount to as much as 10 trillion yen.²⁹ TEPCO is to repay these costs in the next ten years by taking measures including a 3.3 trillion yen corporate downsizing.³⁰ Before the accident, in 2010, the

²⁶ Reconstruction Agency. Fukkou no genjou to torikumi (The status of reconstruction and measures) (September 25, 2013) p44, *available at* www.reconstruction.go.jp/topics/main-cat7/sub-cat7-2/20130925_sanko1-2.pdf

²⁷ On October 23, 2013, an additional 48.3 billion yen in financial support was provided. www.ndf.go.jp/gyomu/tokujikei/inform/inf20131023.html

²⁸ AIST. Josen no kouka to hiyou ni kansuru kaiseki (Analysis of decontamination costs and effects (July 23, 2013), *available at*: confit.atlas.jp/guide/event-img/jsap2014s/18p-D3-2/public/pdf?type=in

²⁹ The Nikkei Shimbun, November 8, 2012 “Uncertainty in Implementation of Support for TEPCO: Government Addresses “10 Trillion” with Caution”

³⁰ TEPCO. Keiei kouritsuka e no torikumi (Measures to improve business efficiency) (May

company had reported consolidated current account profits of approximately 200 billion yen, which had been supported by reduced fuel costs induced by the strong yen and the operation of Reactors 6 and 7 at the Kashiwazaki-Kariwa Nuclear Power Plant. With this in mind, under the current circumstances, it should take an extremely long period of time for TEPCO to repay Government support. According to estimates announced by the Board of Audit on October 16, 2013, it has become evident that even in the event that the government compensation bonds issued amounted to 5 trillion yen, it would take as long as 31 years to recover total costs.³¹

The Fukushima accident has not only affected TEPCO but also other electric power companies as well. With public trust in the safety of nuclear technology lost, almost all nuclear power plants throughout Japan were shut down, thereby threatening the survival of electric power companies. Fuel costs for alternative energy sources increased by a total of 3.6 trillion yen across all nine electric power companies in fiscal 2013, and if nuclear power plants continue to be out of operation for another year then costs will rise to as much as 3.8 trillion yen.³² The costs required to meet the new safety standards compiled by the Nuclear Regulation Authority (NRA) on January 31, 2013³³ have also become a substantial burden. At a meeting of the Fundamental Issues Subcommittee of the Advisory Committee for Natural Resources and Energy held on October 16, 2013, it was estimated that a total of about 1.7 trillion yen would be additionally imposed upon electric power companies as a result of the enactment of the new safety measures.

Against this background, TEPCO raised its electricity tariff in

2012), *available at*:

www.tepco.co.jp/e-ates/individual/kaitei2012/images/agreement/index/agreement_06.pdf

³¹ Board of Audit of Japan. “Report on the Audit on the Implementation Status of Government Support for Compensations for Nuclear Damages Related to the Tokyo Electric Power Company”

(Summary) www.jbaudit.go.jp/pr/kensa/result/25/pdf/251016_youshi_1.pdf (available only in Japanese)

³² www.meti.go.jp/committee/sougouenergy/kihonseisaku/denryoku_jukyu/pdf/002_02_00.pdf

³³ Document distributed at meeting of Advisory Committee for Natural Resources and Energy, Subcommittee on Basic Policy, available at: www.enecho.meti.go.jp/committee/council/basic_policy_subcommittee/007/pdf/007_002.pdf

September 2012, to be followed by the by the Kansai Electric Power Co., Ltd. (KEPCO) and the Kyushu Electric Power Co., Ltd. (“Kyuden”) in May the next year, and the Tohoku Electric Power Co., Ltd. (“Tohoku EPCO”), the Shikoku Electric Power Co., Ltd. (“Yonden”) and Hokkaido Electric Power Co., Ltd. (HEPCO) later in September.³⁴ However, from the perspective of reducing impacts upon national livelihood, raises were minimized, thereby destabilizing the business environment for electric power companies. It became evident that nuclear power could cut both ways – that it was an overly competitive power source in operation but would impose a serious burden upon the balance of payments when stopped and even jeopardize the survival of the company in the event of an accident.

Furthermore, the changes in the business environment for electric power companies induced by the Fukushima accident have accelerated discussions on electric power system reform. One of the reasons that Japan has engaged private companies in electric power operations is to enable the flexible procurement of funds by means of large bank loans, corporate bonds and capital increases, free of budget constraints. The new system currently under discussion will entirely deregulate retail sales of electricity, consequently abolishing the regional monopoly scheme which has enabled companies to secure demand, tariff regulations based on FDC pricing (guaranteed revenue), and the issuing of general mortgage bonds³⁵, which will make it difficult for private companies to make large long-term investments in electric power operations.

In the event that Japan should retain nuclear power generation

³⁴ Chubu Electric Power Co., Ltd.(“Chuden”) also started to consider tariffs raises on September 17, 2013.
www.chuden.co.jp/corporate/publicity/pub_release/teirei/__icsFiles/afieldfile/2013/09/17/130917_2.pdf

³⁵ According to the report by the Electricity System Reform Committee of February 2013, “The further neutralization of the transmission and distribution sector shall be based on consideration of future financial market trends, and financial debts including general mortgage and conduct control should be addressed by implementing measures (transitional measures), such as those for the establishment of a level playing field among operators, which do not impair the procurement of funds required for the stable supply of electricity while ensuring the sound development of electricity business.” This implies that changes may be made after certain transitional measures have been implemented.
www.meti.go.jp/committee/sougouenergy/sougou/denryoku_system_kaikaku/pdf/report_02_01.pdf

for a certain period of time, the continuation of operations could become inevitably impossible without an appropriate institutional design that clarifies how the various risks ((i) risk of accident; (ii) risk of ex-post policy or regulatory changes; and iii) technological complexity (especially concerning technologies for back end operations, the decommissioning of reactors after accidents and reprocessing)) inherently accompanying the use of nuclear technology can be avoided, dealt with or shared among the parties concerned.

This report focuses on two issues: recovering the damages resulting from nuclear accidents which could potentially victimize a massive number of people and inflict unprecedented damages, such as the destruction of entire communities, and designing the different schemes that would be required for the continued peaceful use of nuclear technology, if that is the decision that Japan makes, with a special focus on discussions on the nuclear damage compensation system.

Chapter 2 Historical Context of Nuclear Power in Japan

1. Important perspectives in understanding the history of nuclear power in Japan

In order to understand the origin as well as the historical evolution of nuclear business and policy in Japan, the following three aspects must be considered: 1) international nuclear control and non-proliferation ³⁶ ; 2) energy security / economic efficiency and technological issues; and 3) the business scheme and risks of electric power companies.

After World War II, the U.S., the U.K., France and the U.S.S.R competed to develop nuclear technology for military use. When the U.S.S.R conducted atomic tests and declared its possession of nuclear bombs in September 1949, the U.S. was forced to steer its nuclear policy³⁷ in a different direction. The U.S. diverted from monopolizing nuclear technology and refusing to share it with any other country to promoting its peaceful use through technological transfer and information exchange under bilateral agreements with allies, and sought to entrust an international organization (the International Atomic Energy Agency (IAEA)) with the management of nuclear substances. According to Shimoyama (1976)³⁸, the Atomic Energy Act of 1946 was “the product of serious U.S.-U.S.S.R. confrontation when the monopolization of nuclear technology was an overriding imperative, and was in character a state secret protection law.” The amended Atomic Energy Act of 1954, which was enacted in the year following the delivery of the “Atoms for Peace”³⁹ speech by then US President Dwight Eisenhower at the eighth session of the United States General Assembly,

³⁶ refer to Kimura, Naoto. *Kaku security no kiso chishiki (Basic knowledge of nuclear security)* (The Japan Electric Association, Newspaper Division, 2012)

³⁷ Tanaka, Shingo. Nichibei genshiryoku kyotei no seiritsu: Nihon gawa koushou katei no bunseki (The conclusion of the Japan-U.S. Nuclear Cooperation Agreement: an analysis of Japanese negotiations), *Knowledge Archive*, (Osaka University, 2009)

³⁸ Shimoyama, Shunji (1976) *Genshiryoku*, Yamamoto, soji et al. *Mirai shakai to hou* (Future society and law), Chikumashobo

³⁹ aboutusa.japan.usembassy.gov/pdfs/wwwf-majordocs-peace.pdf

opened opportunities for bilateral nuclear cooperation agreements which had been strictly restricted. The U.S. concluded its first nuclear cooperation agreement with Turkey in 1955 and concluded similar agreements with more than 30 countries including Japan before 1956.

Led by U.S. initiative, the IAEA was established in 1957 to promote the peaceful use of nuclear power and to prevent diversion to military use. This marked the beginning of the peaceful use of nuclear power by Nuclear Non-proliferation Treaty (NPT) non-nuclear weapon states.

2. The evolution of nuclear operations in Japan⁴⁰

(1) 1950s: Developments leading to the introduction of nuclear power in Japan

<Opposition and support for the introduction of nuclear power technologies in Japan and decision of their adoption>

Having lost World War II, Japan had been forbidden to conduct nuclear studies. The ban was lifted with the entry into force of the San Francisco Peace Treaty, but having experienced two atomic bombings during the war, it was only natural that Japan embraced strong opposition against the introduction of nuclear technology, even for peaceful use. Many scientists of the time felt ashamed that they had been forced to cooperate in war and feared that nuclear studies would lead to the development of nuclear weapons. As a result the pros and cons of promoting nuclear studies were fiercely debated.⁴¹ The arguments are well described in *Yukoku no genshiryoku tanjo hiwa (The untold story behind the creation of nuclear patriotism)*, a book written by a former Socialist Party of Japan (SPJ) lawmaker of the House of

⁴⁰ The following references were referred to: Nichibei kyoutei no ugoki (Developments in the Japan-U.S. nuclear cooperation agreement) White Paper on Nuclear Energy 1997, *available at*: www.aec.go.jp/jicst/NC/about/hakusho/wp1977/sb2030201.htm;

Nihon no genshiryoku seisaku no hensen to kokusai seisaku kyouchou ni kansuru rekishiteki kousatsu: higashi asia chiiki no genshiryoku hatsuden dounyuu e no implication (The history of Japan's nuclear policy and a historical observation of international policy cooperation; implications for the introduction of nuclear power generation in East Asia), *available at*: www.rieti.go.jp/jp/publications/pdp/09p002.pdf

⁴¹ Goto, Shigeru (2012) *Yukoku no genshiryoku tanjo hiwa (The untold story behind the creation of nuclear patriotism)*, Energy Forum books

Representatives:

[...] In the midst of such a prevailing mood, Professor Fushimi of Osaka University submitted a paper titled “Why we should promote nuclear power” to the Rondan column of the Asahi Shimbun newspaper (dated November 4, 1952)

‘Japan is poor in energy resources. Most of its coal has already been mined and hydropower has only the potential of a twofold or threefold increase. If Japan cannot succeed as an agricultural country, it has no choice but to struggle to secure the energy resources required for its industrial foundation. The opening of nuclear technology has taught us that uranium reserves hold a tremendous amount of energy resources to replace coal and oil. Having been the first people to experience the tragic consequences of the atomic bomb, the Japanese have a right to demand the world to supply it with uranium. We must respond to those people who made and used the atomic bomb by showing them that we can use atomic energy in a peaceful way. Tens of thousands of tons of uranium are being mined throughout the world today, mostly to be used in weapons. However, if we used it to generate electric power, then it would be equivalent to using hundreds of billions of tons of coal.’

The following day, Professor Shouichi Sakata of Nagoya University submitted a report titled “The challenges of nuclear power in Japan” the same Rondan column:

‘This issue should be deliberated in a newly established government institution with adequate budget resources. Accepting sudden increases to an originally marginal research budget is like spontaneously surrendering academic independence and becoming a political slave. It contains the risk of ending up in a shameful suicidal act of the scientist who seeks to gain research funds in exchange for their independence, which is the soul of academic studies. In the past, Japanese scientists have degraded themselves to mere workmen manipulated by politicians and soldiers in order to obtain large amounts of research funds by cooperating in criminal war. When the Science Council of Japan was established, we were supposed to have repented such obsequious attitudes. I sincerely hope that Japanese scientists will not repeat the mistake of deviating from their principles and tarnishing their academic dignity with dishonorable research fees.’

However, as implied in the Emperor Showa's description of World War II as a war that had "begun with oil and ended with oil (begun with a desperate pursuit for oil resources and was lost due to a lack of oil resources)"⁴² Japan had little resources, and therefore nuclear power generation, which did not require fossil fuels, would provide the "dream energy" for the coming century. Coverage in the press gradually increased⁴³, advocating that its introduction would be the equivalent of a second industrial revolution.⁴⁴ Against the background of the U.S.'s nuclear policy shift, the momentum for introducing nuclear power generation in Japan was enhanced in its pursuit of securing inexpensive and abundant electricity and reducing the amount of foreign currency required for fossil fuel purchases.

As if to express frustration for the reluctance among academics, a motion to request the addition of a nuclear power budget of 235 million yen to the Government budget proposal was brought forth by a multiparty group of lawmakers (from the three conservative parties, namely, the Liberal Party, the Japan Liberal Party and the Reform Party), and was adopted. This was an extraordinary motion not only from the perspective that it had not reflected the intentions of the Science Council of Japan but also from the aspect that the ruling party had submitted a proposal for revision of the Government budget proposal.

Ironically, in March the same year, the Daigo Fukuryu Maru, a Japanese tuna fishing boat, was exposed to and contaminated by nuclear fallout from the U.S.'s hydrogen bomb test on Bikini Atoll. Aikichi Kuboyama, the boat's chief radioman, died six months later. However, the incident did not hinder enthusiasm towards promoting nuclear research and development in Japan.

Scientists announced a "Declaration to demand the principles of

⁴² Yoro, Takeshi, Kotaro Takemura. *Honshitsu wo minuku chikara: kankyō, shokuryō, energy* (The power to see the truth: environment, food energy) (PHP shinsho, 2008.)

⁴³ Tanaka, Shingo. *Nichibei genshiryoku kyotei no seiritsu: Nihon gawa kōshō katei no bunseki* (The conclusion of the Japan-U.S. Nuclear Cooperation Agreement: an analysis of Japanese negotiations), *Knowledge Archive*, (Osaka University, 2009), *available at*: ir.library.osaka-u.ac.jp/dspace/bitstream/11094/12271/1/24-11_n.pdf

⁴⁴ *Genshiryoku ni heiwa no yōto* (A peaceful way of using nuclear energy). The Asahi Shimbun, February 29, 1948

disclosure, democracy and autonomy in nuclear research and use” and requested that the Government respect the opinions and intentions of scientists so that nuclear studies would not lead to the development of nuclear weapons. In light of these requests, the Atomic Energy Basic Act ⁴⁵, the Act for Establishment of the Japan Atomic Energy Commission and the Nuclear Safety Commission, and the Act to Amend the General Administrative Agency of the Cabinet Establishment Act were adopted on December 19, 1955 at the 23rd extraordinary Diet session. The Atomic Energy Basic Act was based on a joint proposal by the Liberal Democratic Party (LDP) and the Socialist Party of Japan (SPJ) (ruling and opposition parties). This phenomenal event is an implication of nationwide enthusiasm to advance the use of nuclear technologies.

In January 1955, the U.S. approached Japan with an offer to provide nuclear technology-related support, including the provision of enriched uranium and the establishment of a nuclear reactor school.⁴⁶ With the signing of the Japan-U.S. Nuclear Cooperation Agreement in November the same year, Japan took a great leap towards the use of nuclear technology.⁴⁷

According to the Long-Term Basic Program for Development and Utilization of Nuclear Energy⁴⁸ informally adopted at a regular meeting of the Japan Atomic Energy Commission (JAEC) held on September 6, 1956 and the Long-Term Plan for Nuclear Reactors for Electric Power Generation (the First Long-Term Basic Program for Development and Utilization of Nuclear Energy)⁴⁹ announced on December 18, 1957, Japan would need to reduce the amount of foreign currency used for energy imports from a balance of payments perspective, given forecasts in the Outlook for Long-Term Supply and Demand of Energy that electricity demand would increase from 61.1 billion kWh in 1957 to 185

⁴⁵ White Paper on Nuclear Energy 1956, available at: www.aec.go.jp/jicst/NC/about/hakusho/wp1956/index.htm

⁴⁶ www.rist.or.jp/atomica/data/dat_detail.php?Title_Key=17-01-02-03

⁴⁷ Details can be found in: Goto, Shigeru (2012) *Yukoku no genshiryoku tanjo hiwa (The untold story behind the creation of nuclear patriotism)*, Energy Forum books, written by a former SPJ lawmaker of the House of Representatives

⁴⁸ www.aec.go.jp/jicst/NC/tyoki/tyoki1956/chokei.htm

⁴⁹ www.aec.go.jp/jicst/NC/about/ugoki/geppou/V03/N01/195801V03N01.HTML

billion nearly twenty years later in 1975 and that 48 percent of total energy demand would be supplied by imported energy sources. Based on an analysis that concluded that by introducing nuclear power, an additional 160 million dollars would be required in foreign currency up to 1968, but 100 million dollars would be generated in savings by 1975, it was decided that “in order to secure low-cost energy, reduce foreign currency spending, stabilize Japan’s energy supply and demand balance and contribute to industrial development, it would be both necessary and appropriate to put nuclear power generation to practical use at a comparatively early time.⁵⁰” Hence, the introduction of nuclear power generation technology was led by the government out of a desperate call for an inexpensive and abundant electricity supply.

(2) 1950s to 60s: Determining the entity to assume nuclear power operation

The Government and private companies were divided concerning who would take the initiative in constructing and operating Japan’s first practical nuclear power plant. The fierce controversy between a proposal for a government-led establishment of a special public corporation (supported by Electric Power Developing Co., Ltd. (“J-Power”)⁵¹) and the idea of establishing a private company under the initiative of the private sector (supported by the nine electric power companies) was a completely different response from that of the American private sector to initial government calls to engage in nuclear operations. The U.S. private sector had strongly appealed that private companies could not take part in such operations without not only fiscal support for the nuclear power generation plan but also special

⁵⁰ “Overview of the plan”

www.aec.go.jp/jicst/NC/about/ugoki/geppou/V03/N01/195801V03N01.HTML

⁵¹ The Electric Power Developing Co., Ltd. (“J-Power”) was established as a special public corporation as provided in the Law for Electric Power Resources Development Promotion on September 16, 1952 (with the Minister of Finance holding a 66.69 percent share of capital and the nine electric power companies holding the remainder). Despite the division of Japan Electric Generation and Transmission Co., Ltd. into regional electric power companies, these companies lacked the financial foundation to make the investments required to support the socioeconomic development of the entire country. Hence, J-Power was established with policy intentions of complementing these financial drawbacks.

measures to be applied in case of accidents.⁵² Perhaps in response to such contentions, the Price-Anderson Nuclear Industries Indemnity Act (“Price-Anderson Act”), which stipulates the U.S. system for nuclear damage compensation, explicitly provides for government compensation for damages exceeding the amounts pooled through liability insurance. The differences observed between the American and Japanese risk allocation schemes – in terms of how risk is allocated between the private and public sectors in the respective nuclear damage compensation systems - might be attributed to the historical context in which they developed in the two countries.

With the establishment of the Japan Atomic Energy Research Institute under the Japan Atomic Energy Research Institute Law in 1955, the Government took the initiative in promoting nuclear technology research, involving the private sector in its application. The establishment of the Mitsubishi Nuclear Engine Committee was among the first efforts of Japanese manufacturers preparing to take part in the nuclear industry. The debate over the business model of the entity to assume nuclear operations was finally politically resolved with the establishment of the Japan Atomic Power Company (JAPC) in 1957. Private companies including the nine electric power companies contributed 80 percent of capital while the Government contributed 20 percent, thereby launching a scheme where the Government would have regulatory and supervising rights and the private sector would assume the actual operations.

There was further debate over whether to apply U.S. technology or U.K. technology in Japan’s first practical reactor. After an agreement on the introduction of British technology was signed in 1958, the Tokai Power Station⁵³ began operating in July 1966. The plant employed a modified Calder Hall-model reactor, which was a carbon dioxide-cooled reactor fuelled by natural uranium, developed and commercialized in the U.K. and modified to implement seismic design unique to Japan. However, the Windscale fire of 1957, which involved a nuclear reactor

⁵² Shimoyama, Shunji (1976) *Genshiryoku*, Yamamoto, Soji, et al. *Mirai shakai to hou* (Future society and law), Chikuma Shobo, p455

⁵³ Japan Atomic Power Company (JAPC) website:
www.japc.co.jp/project/haishi/tokai.html

that was supposedly the prototype of the Calder Hall model and released radioactive substances to surrounding areas, aroused doubts regarding the safety of the technology used. These concerns, accompanied by those regarding the high costs entailed, led to its replacement with American light-water reactor technology.

Other electric power companies drew on the knowledge gained in constructing and operating the Tokai Power Station. The Tsuruga Power Station was opened by JAPC in 1970, to be followed by KEPCO's Mihama Nuclear Power Plant Unit 1 reactor, the first reactor to be operated by a private electric power company. In 1971, TEPCO started to operate the Fukushima Daiichi Nuclear Power Plant Unit 1 reactor. By 1978, nuclear power accounted for over 10 percent of electric power generated in Japan.

(3) 1970-80s: A nuclear business scheme “privately run under national policy” established in the Oil Crises

After China successfully conducted atomic tests in 1964, other nations also joined the “nuclear club,” thereby increasing the necessity for international nuclear control. This led to the signing of the Treaty on the Non-proliferation of Nuclear Weapons (NPT) in 1968. Simultaneously, research on nuclear fuel cycle technology having made great advancements in the U.S., the U.K. and France, Japan sought to obtain the technology for government-led development of basic fuel cycle technologies. The revised Japan-U.S. Nuclear Cooperation Agreement of 1968 allowed Japan to reprocess spent fuel in domestic facilities and the Power Reactor and Nuclear Fuel Development Corporation (PNC) was established as the research institution to advance nuclear fuel cycle technology development. PNC consecutively launched projects to build the fast-breeder reactor, “Joyo,” the advanced thermal reactor “Fugen” and a reprocessing plant in Tokai Village.

The accident caused by the nuclear-powered ship “Mutsu” which had released radioactive substances triggered many administrative lawsuits by local residents, all of which were found in favor of the defendant. As Takagi (2011)⁵⁴ indicates, the court had ruled that

⁵⁴ Takagi, Shinjiro. *Moshi kaisha kousei de kaiketsu suru to sitara* (If the issue was to be solved using corporate rehabilitation procedures) (Kinyu zaisei jijo, May 30, 2011)

electric power companies had only supplied the electricity required according to the safety standards determined by the government based on all the scientific expertise available and that nuclear power plants which were built in compliance with such safety standards were capable of resisting disaster.

In 1973, the foundation of Japan's energy policy was shaken by the First Oil Crisis. Having depended on oil for approximately 70 percent of its electric power supply, Japan could not avoid serious impacts on its national livelihood. Therefore, in order to promote the diversification of power sources, Japan decided to encourage the further use of LNG-fired thermal power and nuclear power. Nuclear power was an especially promising option as nuclear power plants would not require additional fuel for a couple of years once it was loaded and uranium reserves were distributed widely throughout the world.

In support of electric power development and operation, the Government adopted what is known as the Power Source Siting Laws, namely the Act on the Development of Areas Adjacent to Electric Power Generating Facilities, the Law on Promotion of Power Resources Development Tax and the Act on Special Accounts (originally, the Law on Special Accounts for Electric Power Development Acceleration Measures). These laws allowed local governments hosting nuclear power plants to receive subsidies not only during the construction of a nuclear power plant but also during its operation. Estimates of financial advantages enjoyed by a local government hosting a 1,350 MW nuclear power plants are displayed in Table 1⁵⁵. Subsidies were reviewed on several occasions as difficulties increased in siting nuclear facilities; and therefore, they have been amplified to a great extent from the initial scheme.

The enactment of the Power Source Siting Laws enhanced government involvement as a result of the two Oil Crises in 1973 and 1979 and with a view to establish the nuclear fuel cycle. It marked the foundation of a "nine-company convoy system privately run under national policy" which would serve as the framework for Japan's nuclear operations. In the 1970s and the 1980s, subsidies for local governments hosting nuclear power plants invited a rush to construct

⁵⁵ Agency for Natural Resources and Energy. *Dengen ricchi seido no gaiyo* (Overview of the power source siting policy), available at: www.enecho.meti.go.jp/about/pamphlet/pdf/dengenrichi.pdf

light-water reactors, which had by then developed into domestic technology, therefore boosting the ratio of nuclear power to 30 percent of Japan's power generation portfolio.

(100 million yen)

	Design (3 years)	Construction (7 years)	Operation1 (15 yrs)	Operation2 (14 yrs)	Operation3 (6 yrs)	Total (45 yrs)	Scheme ¹
Grants for area locating electric power stations						1,125	
Grants for initial costs for siting electric power stations	5.2	5.2				52	H,N,P
Grants for promotion of siting electric power stations		20.3				142	H,N
Grants for areas surrounding electric power stations ²		39-11.7	11.7	11.7	11.7	597	H,N
Grants for electricity transmitting prefectures ³		3-13	3-6-	6	6	275	P
Grants for long-term development measures of area siting nuclear power stations ⁴			2-3	4.5	6.92	149	H
Grants for development of area locating nuclear power stations ⁵					5-0	25	P
Total grants by period (annual amounts)	16 (5.2)	434 (62.0)	307 (20.4)	311 (22.2)	173 (28.8)	1,240 (27.5)	

*1 Basic schemes: H indicates subsidies provided to local governments (cities, towns and villages) hosting nuclear power facility; N indicates subsidies provided to prefectures for the benefit of neighboring local governments; P indicates subsidies provide to prefectures

*2 Grants for areas surrounding electric power stations: subsidies of 3.9 billion yen during the fourth to sixth years, 2.34 billion yen during the seventh and eighth years, 11.7 billion yen during the ninth and tenth years and onwards

*3 Grants for electricity transmitting prefectures: subsidies of 1 billion yen in the fourth year, 1.3 billion yen during the fifth to eighth years, 0.3 billion yen during the ninth to eleventh years, 0.6 billion from the eleventh year onwards (provided primarily to prefectures and distributed in part to hosting local governments and adjacent communities)

*4 Grants for long-term development measures of area siting nuclear power stations: 0.2 billion yen in the eleventh year, 0.3 billion yen during the 12th to 25th years, 0.45 billion yen during the 26th to 39th years, 0.692 billion yen in the 40th year and beyond

*5 Grants for development of area locating nuclear power stations (a component of grants for promotion of siting electric power stations): 0.5 billion yen during the 40th to 44th years (the recipient prefecture can distribute monies to either the hosting local government or neighboring communities)

Source: Genpatsu ricchi jichitai no zaisei kankyo mondai
(Financial and economic issues for local governments hosting nuclear power plants)
Chosa to joho No.767⁵⁶

Table 1 Example of Financial Resources
(1350MW reactor, 10 years required before operation)

⁵⁶ available at: dl.ndl.go.jp/view/download/digidepo_6019846_po_0767.pdf?contentNo=1

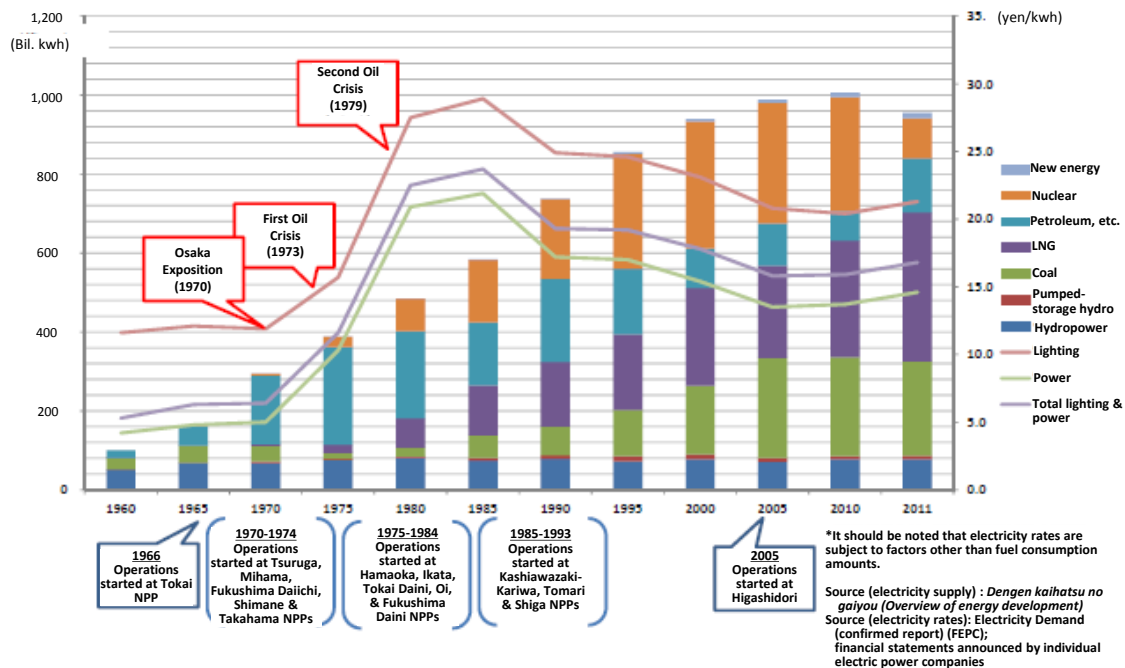


Figure 1 Electricity tariffs and fuel consumption trends

(4) Beyond 1990 to the Fukushima accident: deregulation and economic stagnation

i) Nuclear back end risk consortium

Nuclear development in the Democratic People's Republic of Korea (DPRK) had become a new threat, structurally different from the confrontation between the U.S. and the U.S.S.R.. The DPRK had joined the NPT in 1985 but withdrew from the organization in 1994, for the alleged development of nuclear weapons⁵⁷. Subsequent negotiations led to the conclusion of the U.S.-DPRK Agreed Framework, according to which the Korean Peninsula Energy Development Organization (KEDO) was established for its implementation. Under the agreement, the DPRK was provided two light-water reactors entailing little risk of becoming a source of nuclear proliferation and an annual supply of 500,000 tons of heavy oil until their completion, which were jointly financed by Japan and the Republic of Korea (ROK), with a view to drive the DPRK into abandoning the use of its graphite moderated reactor and its plan to develop nuclear weapons. However, the DPRK is suspected of having

⁵⁷ Overview of the Nuclear Non-proliferation Treaty (NPT) available on the Ministry of Foreign Affairs website

continued to pursue nuclear development, as it refused to accept IAEA investigations and finally withdrew from IAEA. The liquidation of KEDO was decided at an Executive Board meeting in 2005.

Against this backdrop, in 1980, Japan Nuclear Fuel Services Co., Ltd. (currently, Japan Nuclear Fuel Limited (JNFL)) was established under the co-financing of nine electric utilities and JAPC with the important mission of setting a model for the peaceful use of plutonium under the supervision of the IAEA. In 1993, it began constructing the Rokkasho Nuclear Reprocessing Plant, which marked the launching of a 1 trillion yen project, according to initial estimates⁵⁸. There are few examples in the world where a private business has assumed nuclear back end operations. Particularly closely linked with nuclear security, the reprocessing and reuse of spent fuel in the nuclear fuel cycle cannot be pursued without intensive government involvement. However, in terms of financing, to the extent that FDC pricing and regional monopoly is retained as a means of guaranteeing the stable procurement of large sums of money, private sector involvement encompasses the advantage of being able to employ flexible measures to address the issues of siting and financing nuclear facilities while the government would only have to provide indirect support through subsidies. As electric power companies shifted from the initial phase of constructing new nuclear power plants to mutually maintaining a certain operation rate, the “back end risk consortium” comprising the nine electric power companies and JAPC, joint shareholders (400 billion Japanese yen in capital) and joint guarantors (1 trillion Japanese yen) of JNFL, evolved into a more robust framework, premised on which electric companies became substantially legally obliged to reprocess all spent fuel (Designated Radioactive Waste Final Disposal Act, Spent Nuclear Fuel Reprocessing Fund Act). Hence, the framework for nuclear operations “privately run under national policy” was enhanced.

⁵⁸ The cost structure of back end business as a whole is discussed in detail in the estimates conducted by the Cost Verification Committee, Advisory Committee for Natural Resources and Energy
www.cas.go.jp/jp/seisaku/npu/policy09/pdf/20111221/hokoku.pdf

ii) Climate change issues and the Nuclear Renaissance

In the 1990s, climate change became the next threat to humankind after the Cold War. In 1992, the United States Framework Convention on Climate Change (UNFCCC) was adopted at the United Nations Conference on Environment and Development (often called the “Rio Earth Summit,” after the host city, Rio de Janeiro). With the adoption of the UNFCCC which ultimately aims to stabilize atmospheric greenhouse gas (GHG) concentrations and the Kyoto Protocol which was formulated based on the Convention’s philosophy, the world was challenged with the resolution of climate change issues and thus developed higher expectations for the expansion of nuclear power, which emits no carbon dioxide during operation. Also referred to as the Nuclear Renaissance, Matsui (2011)⁵⁹ explains the background of the phenomenon:

Firstly, many countries which had refrained from ordering new plants have been begun to place orders again, more countries are planning to build new plants, and some countries, including China and India, have announced major construction projects.

Secondly, in addition to the upgrading of light-water reactors and their enlargement, the development of various types of reactors, including small-sized nuclear reactors, thorium-based nuclear reactors and high-temperature gas reactors, which had previously not been considered attractive options have come to draw attention. Furthermore, developments have been made in probability studies regarding the nuclear fuel cycle, including fast reactors.

Thirdly, new concepts for using nuclear power generation in hydrogen and magnesium production are being seriously considered.

The Basic Energy Plan adopted in June 2010 by the DPJ administration, which pledged to reduce GHG emissions by 25% from 1990 levels by 2020, provided for the construction of nine new nuclear reactors and the achievement of a national operation rate of approximately 85% by 2020, (against 54 reactors in operation with an operation rate of approximately 60% at the time of its adoption). It

⁵⁹ Matsui, Kenichi. Fukushima genpatsu jiko wo norikoete – global energy shift no jidai (Overcoming the Fukushima nuclear power plant accident: the global energy shift era) (Energy Forum books, 2011) P55-

further provided for the construction of at least 14 new nuclear reactors and aimed to achieve an operation rate of 90% by 2030. This implies that the expansion of nuclear power use was necessary in securing a stable and low-carbon electricity supply, and hence, the Nuclear Renaissance became mainstream not only in Japan but also in many countries around the world.

However, this may not simply be a sign of the revival of nuclear energy as an effective means to counter global warming but of the return of global trends towards relying on nuclear power for “economies of scale,” now that many electric power companies have merged after markets in many developed countries were deregulated in the 1990s, thereby impeding the large investments required for nuclear power.⁶⁰ Although some developed countries shifted towards nuclear phase-out after the Fukushima accident, the world as a whole has not changed its course in promoting nuclear power introduction. According to IAEA forecasts of September 2012, global installed nuclear power capacity is projected to increase by 25% to 100% in 2030 (90-370 reactors will be newly built in total, on an annual basis of 5-20 reactors based on a conversion to 1 MW nuclear power plants).

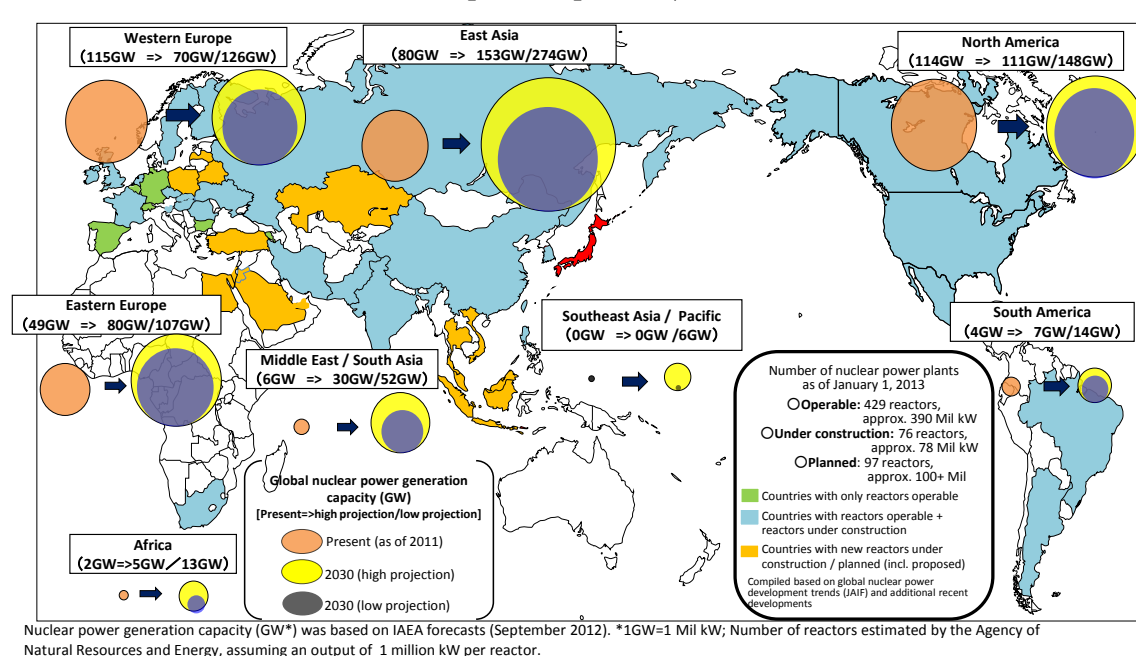


Figure 2 Status of major nuclear power development and forecasts for future nuclear power generation

⁶⁰ Takemori, Shunpei. Kokusaku minei no wana (The trap of private businesses led by national policy) (Nihon keizai shimbun shuppansha, 2011) P73

The Japanese Government has explicitly stated its intentions to continue to encourage exports of nuclear power plants as a part of its growth strategy⁶¹, and is negotiating nuclear cooperation agreements with relevant countries in order to transfer nuclear substances and nuclear equipment and technology overseas.

iii) Slow demand due to a stagnant economy and advancements in deregulation

At the same time, the 1990s was a period of slow electricity demand growth due to economic stagnation and developments in deregulation, which had a significant impact on nuclear business. Given calls for the closure of price differences between domestic and international markets in the early 1990s, the electric power market was gradually deregulated from 1995, leading to the deregulation of 60 percent of electricity demand, with the exception of the household sector. However, after almost 20 years since the initial implementation of partial deregulation measures, newcomers to the market represent only 3 percent of total supply, due to the fundamental problem that few businesses can compete with major electric companies, which possess overwhelmingly price-competitive nuclear power plants. Little competition has occurred among existing electric power companies (with the exception of the sole case between Kyuden and Chubu Electric

⁶¹ According to Kumao Kaneko, “During his visit to the Middle East in May, this spring, Prime Minister Abe concluded bilateral nuclear cooperation agreements with the United Arab Emirates (UAE) and Turkey and agreed with Saudi Arabia on beginning talks on a bilateral agreement. Upon Indian Prime Minister Singh’s visit to Japan in late May, Japan and India agreed on the early conclusion of the Japan-India Nuclear Cooperation Agreement, followed by agreement with four East European countries on the promotion of fostering a mutual relationship on nuclear cooperation in Warsaw, at the first top-level meeting with these countries. [...] Prime Minister Abe has been misunderstood to have suddenly begun scrambling to export nuclear power plants, but under the DPJ administration, ten months after the TEPCO Fukushima Daiichi Nuclear Power Plant accident, four bilateral nuclear cooperation agreements with Vietnam, Jordan, the Republic of Korea and Russia were ratified upon Diet approval. Nuclear cooperation agreement negotiations are currently underway with South Africa, Brazil and Mexico as well.” excerpts from “The Denki Shimbun “Wave” column, August 7, 2013

Information can also be found on the Ministry of Foreign Affairs website: www.mofa.go.jp/mofaj/area/jordan/data.html#6

Furthermore, at the Upper House plenary session on October 18, 2013, Prime Minister Abe restated his intentions to export nuclear power plants: “It is Japan’s responsibility to contribute to enhancing the safety of nuclear power plants worldwide by sharing the lessons learned in the accident at Fukushima Daiichi Nuclear Power Plant with the world.”

Power Co., Ltd. (“Chuden”)); and therefore, the conventional structure of stable revenue and market share remains unchanged. While according to some estimates, past deregulation measures have suppressed electricity tariffs by as much as 5 trillion yen as a result of competition pressure⁶², another analysis points to the fact that electric power companies hindered the effect of deregulation measures by literally forming a “revenue-securing consortium” that maintained the operation rate of nuclear power plants, as well as a “nuclear back end risk consortium.”⁶³ However, despite its continued ties with the “nuclear back end risk consortium,” Chuden⁶⁴ launched business operations in TEPCO’s service area in August 2013, followed by Kanden⁶⁵ in September. This implies that the “nuclear back end consortium” might not have been the sole impediment to deregulation.

In May 2006, the Subcommittee on Electric Power Deregulation and Nuclear Power, established under the Nuclear Power Subcommittee of the Electric Utility Industry Subcommittee of the Advisory Committee for Natural Resources and Energy, published a report⁶⁶ on the projected impacts that progress in the deregulation of the electric power sector would have on electric power plants such as nuclear power plants that entail large-scale and long-term investment. It analyzed from the perspectives of finance, siting and demand, whether Japan would be able to maintain the nuclear ratio provided for in the Nuclear Policy Outline adopted by the Government in the event that operators were left to make investment decisions under open competition, and indicated that the following issues would have to be addressed:

⁶² Agency for Natural Resources and Energy. Denryoku system kaikaku to sono kouka (Electricity system reforms and effects) (May 2013), available at: www.enecho.meti.go.jp/committee/council/basic_policy_subcommittee/past/003/pdf/003_011.pdf

⁶³ Kikkawa, Takeo. Tokyo denryoku shippai no honshitu (TEPCO: the essence of its failure) (Toyo Keizai, Inc., 2011)

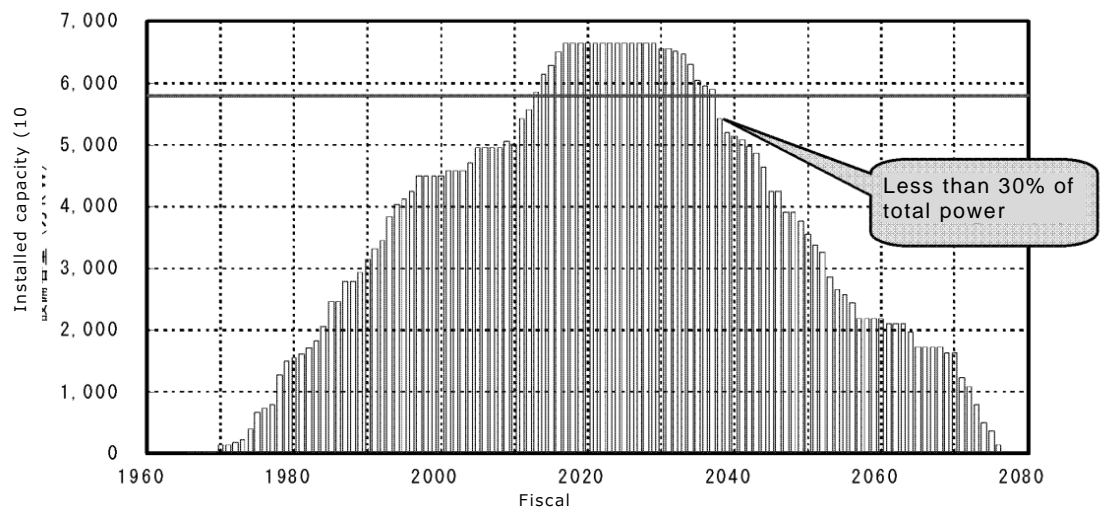
⁶⁴ Chuden press release on acquisition of Diamond Power Corporation stock and establishment of an electricity generation company available at: www.chuden.co.jp/corporate/publicity/pub_release/press/3225133_6926.html

⁶⁵ KEPCO press release on launching plans for a new integrated energu business by Kanden Energy Solution Inc., Co. available at: www.kepcocorp.co.jp/pressre/2013/0920_1j.html

⁶⁶ Draft Report of the Subcommittee on Electric Power Deregulation and Nuclear Power www.meti.go.jp/committee/materials/downloadfiles/g60519a03j.pdf

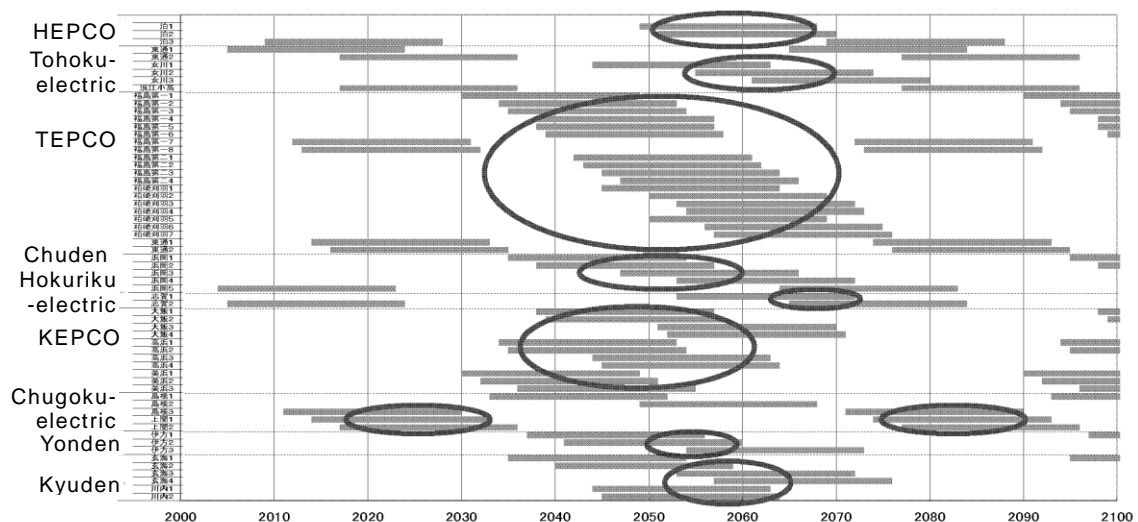
Report of the Subcommittee on Electric Power Deregulation and Nuclear Power (Outline)www.meti.go.jp/committee/materials/downloadfiles/g60607f03j.pdf

- 1) lowering and dispersing investment risks unique to nuclear power generation
- 2) decreasing and leveling initial investments and decommissioning costs
- 3) promoting wide-area operations
- 4) visualizing the advantages of nuclear power generation



*Ratio of nuclear power against total electric power generation assuming a constant operation rate of 75%, just below the average rate for the past ten years (77%)

Figure 3 Installed capacity of nuclear power facilities in the case of no replacements of aged plants



Source: Compilation (Overview) by Subcommittee on Electric Power Deregulation and Nuclear Power, Agency of Energy and Natural Resources, May 30, 2006

Figure 4 Depreciation periods for subsequent replacements of nuclear power plants after 60 years of operation

The OECD has also conducted an analysis on the difficulties in procuring funds for nuclear power in a competitive deregulated electric power market.⁶⁷ In the U.S., the competitiveness of nuclear power has been undermined by the shale gas revolution, which has triggered the successive freezing of nuclear energy plans, the decommissioning of reactors, and the corporate withdrawal of operators (France's EDF) ⁶⁸. The U.K., on the other hand, is rediscovering the significance of nuclear power generation. The U.K. began to deregulate its electric power market in 1990 and fully deregulated the retail market in 1999, with the nuclear power sector already having been privatized 1995. However, acknowledging the need to address a declining energy self-sufficiency rate resulting from reduced oil produce in the North Sea oil and gas fields, climate change issues and anxiety that a stable electric power supply may not be maintained, the U.K. has been enthusiastic about developing nuclear power as well as renewable energy. In order to ensure that investments made in nuclear power generation can be recovered, it has recently decided to introduce a Feed-in-Tariff with Contracts for Difference (FIT-CfD) scheme for which the U.K government has been negotiating with nuclear operators the terms of purchase. On October 21, 2013 the U.K. Department of Energy and Climate Change (DECC) and operator EDF Energy (a subsidiary of France's EDF) announced that they had reached agreement on a project to build two 1600MW reactors at Hinckley Point C⁶⁹ which would generally guarantee a strike price (the fixed wholesale price of electricity generated at a newly constructed site) of 89.5 pounds per MWh over 35 years.

iv) The JCO accident

On September 30, a criticality accident occurred at Japan Nuclear Fuel Conversion Co. (JCO)'s nuclear conversion plant in Tokai Village, Ibaraki Prefecture. The accident was classified by the Japanese authorities as Level 4 on the IAEA International Nuclear and Radiological Event Scale (INES), indicating that it was an event without significant off-site risk, and became the first event to which the Nuclear

⁶⁷ Nuclear Power in Competitive Markets
www.oecd-neo.org/ndd/reports/2000/nea2569-dereg.pdf

⁶⁸ Coverage in "The 'economic efficiency' barrier of U.S. nuclear plants" The Nikkei Shimbun, August 6, 2013

⁶⁹ Department of Energy and Climate Change www.gov.uk/government/news/hinkley-point-c

Compensation Act was applied. However, the accident is distinctly different from the TEPCO Fukushima accident in terms of geographical and temporal coverage, content and character. Based on Japan's experiences in the accident, the Act on Special Measures Concerning Nuclear Emergency Preparedness was adopted in December 1999, giving the Prime Minister full power to directly provide instructions to local governments and nuclear operators in order to prevent the wider expansion of disaster and to allow evacuation, once the Prime Minister has declared a state of nuclear emergency. However, as later mentioned, the Nuclear Compensation Act unfortunately did not undergo revision then nor at any later time before the Fukushima accident.

Liability of operators regarding cause of accident	Accident caused by breaches of manual
Impact on residents of surrounding areas	Evacuation order to 40 households within a 350 meter radius of the accident site, evacuation advisory to residents within a 500 meter radius, indoor evacuation order to 100,000 households within a 10 kilometers radius.
Period of evacuation	Indoor evacuation orders to residents within a 10 kilometer radius of the accident site announced at 20:30, lifted at 16:30 the following day.
Human casualties	Out of the three workers, two died, one suffered radiation injury. Secondary exposure, etc. of firefighters.
Characteristic of damages	No direct damages, including soil contamination and health hazards caused by dispersed radioactive material or health hazards due to radioactive rays, observed. Most damages attributed to harmful rumors. (Some have noted that there is room for discussion whether such damages qualify for damage compensation under the Nuclear Compensation Act.)
Compensation amount / no. of cases	Approximately 15.4 billion yen / 7000 cases
Compensation amounts exceeding operator capacity	Support from parent company, Sumitomo Metal Mining Co.
Administrative costs incurred in compensation negotiations	Damages limited to Ibaraki Prefecture and mainly involved harmful rumors. Hence, comprehensive negotiations with industry groups possible. Negotiation costs inferred to be relatively low due to local government support in negotiations.

Compiled by author from MEXT meeting documents⁷⁰, CRIEPI research report⁷¹, and report by the Expert Committee on Nuclear Safety Investigation⁷²

Table 2 Features of the JCO accident

⁷⁰ www.mext.go.jp/b_menu/shingi/chousa/kaihatu/016/shiryu/__icsFiles/afieldfile/2011/04/20/1305111_5.pdf

⁷¹ Central Research Institute of Electric Power Industry, report available at: criepi.denken.or.jp/jp/kenkikaku/report/detail/Y02012.html

⁷² www.nr.titech.ac.jp/~hsekimot/AESJSafety/

Chapter 3 Fundamental Principles of a Nuclear Damage Compensation Scheme

The purposes of a compensation scheme for nuclear damages are to “protect persons suffering from nuclear damage” and “to contribute to the sound development of nuclear business.” Many countries including Japan have embedded these purposes in their laws concerning nuclear compensation. As damages from nuclear disasters are likely to extend over a wide geographical and temporal range, there is a need to make available adequate compensation amounts for liability claims. Furthermore, given the complexity and novelty of nuclear technology, it is difficult for the victims of a nuclear accident to identify the parties liable and provide relevant evidence. Therefore, the procedures of identifying the liable parties and claiming compensation for damages must be facilitated under a nuclear compensation scheme. The basic framework of a compensation scheme addresses such calls for victim protection, while also maintaining the foreseeability and stability of nuclear business in order to encourage private sector involvement and thus foster it, by employing insurance to cover for a given scope of financial burdens and explicitly providing for government involvement under certain circumstances and in the event that compensation amounts exceed a given upper limit⁷³.

Given the historical context in which countries formulated their nuclear compensation schemes in agreement with the U.S.’s demand of importing countries that American nuclear power facility manufacturers, such as General Electric Company (GE), would not be held liable for any nuclear accidents, the basic institutional principles, including the purpose of relevant laws, are nearly globally common. The basic principles are provided below:

⁷³ JAIC. *Anata ni shitte moraitai genbai seido* (Introduction to Japan’s Nuclear Compensation System) (2012), p14

1) Tightening up and concentration of liability	Nuclear power operators are subject to strict liability and limited immunity. In addition, even if an accident should occur due to causes attributable to the facility supplier, the operator shall be solely liable. (exclusive liability)
2) Scope of application	“Nuclear damages” under a nuclear damage compensation scheme are caused by accidents that are attributable to reactor operations.
3) Mandatory financial security	Compulsory subscription to private insurance and/or indemnity agreement with government to secure the operator’s ability to pay
4) Limitation of compensation payments	A maximum liability amount is set for compensation payments so that the operator is not held liable for unlimited sums of money. Ceilings have exceptionally not been set in Japan, Germany and Switzerland, and therefore operators in these countries assume unlimited liability.
5) Government compensation	When operators are not capable of making compensation payments in full, the government compensates for remaining amounts. *Japan’s Nuclear Compensation Act does not include explicit provisions about compensation by the government.

Compiled by the author from material published by the Japan Atomic Industrial Forum, Inc⁷⁴

Table 3 Internationally common principles in compensation schemes for nuclear damages

Modern law developed based on the fault liability principle, therefore holding a person liable for damages only when there is evidence of criminal intention or negligence. This principle is based on the “theory of imposing minimal restriction upon an individual’s freedom of action,”⁷⁵ which has contributed greatly to the development of modern capitalism. However, against the backdrop of economic growth and the advancement of science and technology, modern companies came to be inherently subject to risk, and therefore risk-

⁷⁴ JAIC. Anata ni shitte moraitai genbai seido (Introduction to Japan’s Nuclear Compensation System) (2011, 2012)

⁷⁵ Wagatsuma, Sakae. Jimu kanri, hutou ritoku, huhou kou (Administrative management, illegal gains and acts of tort)

based liability (strict liability principle)⁷⁶ emerged and came to be applied to damages to third parties resulting from accidents, such as airplane and cosmic crashes and oil spills in oceans as well as the operation of nuclear facilities and nuclear-powered ships⁷⁷. Principle 1 on the aforementioned list of internationally common principles in nuclear compensation schemes – the tightening up of liability - is based on calls for the protection of victimized parties, and incorporates the fault liability principle, thereby holding parties who caused the damage liable regardless of their intentions or negligence. It also limits the extent to which exclusions are accepted in order to widely recover the damages suffered. As will be later discussed herein, recommendations made by the Expert Committee on Nuclear Disaster Compensation (c.f. Table 4) explicitly advocated that nuclear operators should bear strict liability on grounds that “the concept that any person who is operating a business that entails risks that are inevitable products of modern science should be liable for damages occurring from it regardless of his intentions or negligence is indeed an established principle which has already been widely applied to traffic accidents.”⁷⁸

The adoption of the principle of exclusive liability owes greatly to the fact that companies in recipient countries of nuclear technology could not receive the technology unless they guaranteed that U.S. and U.K. suppliers of nuclear technology and material would not be held liable for nuclear damages. At the same time, the principle promised to relieve victims of the burden of identifying the source of an accident and to avoid the duplication of insurance agreements, as well as to prevent any reluctance among nuclear plant and component manufacturers and other private companies to engage in nuclear business in fear of liability risks. The exclusive liability principle is not provided for in written law under some nuclear liability schemes (such as the U.S. Price-Anderson Nuclear Industries Indemnity Act (“Price-

⁷⁶ Kanazawa, Yoshio. Kojin no songai baisho sekinin ni taisuru kokka no hokanteki sayou (The government's complementary role in an individual's liability for damages)

⁷⁷ Yamamoto, Soji. Kokusaihou ni okeru kiken sekinin shugi (Risk-based liability in international law) was also referred to

⁷⁸ Report by the Expert Committee on Nuclear Disaster Compensation on December 12, 1959, *available at* www.aec.go.jp/jicst/NC/about/ugoki/geppou/V04/N12/19591206V04N12.html

Anderson Act”)), but by including all parties which have any possibility of bearing liabilities as joint insureds in an insurance agreement signed by nuclear operators, liabilities are in effect centered upon licensees in these schemes as well.

Furthermore, as it would be insufficient to merely hold parties liable for damages, financial security must mandatorily be maintained in order to guarantee the availability of monies for compensation (principle 3). As this is an extremely important when actually executing nuclear compensation, the maintenance of financial security is a typical requirement for operating reactors. Measures for maintaining financial security include deposits and mutual assistance programs as well as private insurances, which all inherently have limited capacities.

Government compensation covers for damages exceeding such limits or exclusions in insurance agreements (principle 5).

Hence, from the perspective of protecting victimized parties, the basic framework of nuclear compensation comprises three pillars, namely, demanding that nuclear operators bear a level of liability more stringent than what is usually required under modern law (strict liability, exclusive liability and limited immunity), requiring operators to secure financial resources for compensation payments by means of private insurance, and providing government compensation in the event such insurances fail to recover all damages.⁷⁹

Japan has concluded bilateral agreements with not only countries which already employ nuclear power but also with countries that are newly introducing nuclear power. The latter have also established compensation schemes with similar frameworks. (As of September 2012, Japan has concluded nuclear cooperation agreements with the U.S.,

⁷⁹ Refer to: Takeuchi, Akio. *Genshiryoku songai nihou no gaiyou* (Outline of Two Laws Concerning Nuclear Damage), *Jurist* No236 (available only in Japanese) www.yuhikaku.co.jp/static_files/shinsai/jurist/J0236029.pdf;

Tanabe, Tomoyuki, M. Maruyama. *Fukushima Daiichi Genshiryoku Hatsudensho Jiko ga Teikishita waga kuni no genshiryoku songai seido no kadai to sono kokufuku ni muketa seido kaikaku no houkousei* (The issues concerning Japan's compensation system for nuclear damages raised by the accident at Fukushima Daiichi Nuclear Power Plant and the direction of system reforms to overcome the challenges), (Central Research Institute of Electric Power Industry, 2012) ; and other reports. It should also be noted that, for example, Utatsu states in *Genshiryoku songaibaishou no houritsu mondai* (*Legal issues of nuclear damage compensation*) that i) strict liability, ii) limited liability, iii) exclusive liability, and iv) mandatory financial security are the four common principles of liability.

the U.K., Canada, Australia, France, China, the European Atomic Energy Community (EURATOM), Kazakhstan, ROK, Vietnam, Jordan and Russia.⁸⁰

⁸⁰ A list of agreements related to nuclear energy is available on the Ministry of Foreign Affairs website : www.mofa.go.jp/mofaj/gaiko/atom/topics/jyoyaku.html

Chapter 4 The features of Japan's Act on Compensation for Nuclear Damages: its origin and context of amendments

1. Historical context of the enactment of the Nuclear Compensation Act

As discussed above in Chapter 2, Japan decided to engage in the peaceful use of nuclear power with the aim to secure an abundant and inexpensive source of energy and to reduce its foreign currency needs by cutting down on thermal power. Nuclear technology being monopolized by the U.S. and the U.K. at the time, the establishment of a nuclear compensation scheme was required for the introduction of nuclear technology. As aforementioned, the need for legislation on nuclear compensation was first acknowledged when the Japan-U.S. Nuclear Cooperation Agreement was concluded in 1956 and the provision on exempting American manufacturers from liability provoked domestic controversy⁸¹. Later in 1957, the Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors ("Nuclear Reactor Regulation Act") was enacted, to be amended in 1959 to obligate nuclear reactor licensees to maintain financial security for potential damages imposed upon third parties based on criteria determined by ordinance (Act No. 103 of 1959). As Japan gradually prepared the platform for introducing nuclear energy, it was faced with an increasing need to establish a nuclear compensation scheme. The events leading to the enactment of the two laws on nuclear compensation are compiled into a chronological table below⁸².

⁸¹ Sakae Wagatsuma, Takeo Suzuki, Ichiro Kato, Ryo Inoue, Katsuji Fukuda, Seisho Horii, Shozo Nagasaki, Keiichiro Sugimura. Zadankai: genshiryoku saigai hoshō wo megutte (Round-table: compensation for nuclear damages), *Jurist* No.236, October 15, 1961

⁸² Genshiryoku saigai hoshō kanren hōki no seibi (Establishment of laws regarding compensation for nuclear disasters)
www.aec.go.jp/jicst/NC/about/hakusho/wp1960/sb20201.htm

Genshiryoku saigai hoshō ni tsuitenō kihon hōshin no kettei (Decision on basic policy for compensation for nuclear disasters) (Genshiryoku geppō, 1958)
www.aec.go.jp/jicst/NC/about/ugoki/geppou/V03/N11/195801V03N11.HTML

Report by the Expert Committee on Nuclear Disaster Compensation on December 12, 1959, *available at*

Date	Event	Description
Nov. 1956	Conclusion of the Agreement for Cooperation between the Government of Japan and the Government of the United States of America on Civil Uses of Atomic Energy	Agreement of leasing fuel for experimental nuclear reactor at Tokaimura, Ibaraki Prefecture. Included provision that “upon receipt of fuel, the Government of Japan shall exempt the Government of the United States of America from all liabilities occurring from the production, processing, ownership, leasing, possession, and use of fuel.”
1957	Deliberations on nuclear compensation scheme launched in the Atomic Energy Council	
Oct. 1958	Decision on the “Key Principles for a Compensation Scheme for Nuclear Disasters”	Establishment of Expert Committee on Nuclear Disaster Compensation (Chaired by Sakae Wagatsuma)
Dec. 1959	Report submitted by the Expert Committee on Nuclear Disaster Compensation	Deliberations in Atomic Energy Council, adjustments with relevant ministries and agencies
Mar. 1960	Informal decision on the “Establishment of a Scheme for the Compensation of Nuclear Damages”	
Apr. 1960	Cabinet decision on Compensation for Nuclear Damages bill	
May 1960	Submission of the bill to Diet	Pending due to confusion related to Japan-U.S. Security Treaty issues ; later withdrawn
Oct. 1960	Resuming of the Expert Committee on Nuclear Disaster Compensation	Preparations for drafting the Act on Indemnity Agreements for Compensation for Nuclear Damage bill
May. 1961	Discussion at the Special Committee for Science and Technology Promotion meeting; adopted by unanimous vote with collateral resolution	Collateral Resolution: 1) Establish safety criteria and implement preventive measures against nuclear accidents. Conduct radiation dose checks for residents living in surrounding areas; 2) Implement measures to address employee hazards as necessary; 3) Provide government assistance for damages exceeding 5 billion yen and instruct operators to pool profits; 4) Take required government measures in the event an international agreement has been concluded
Jun. 1961	Deliberation at Upper House Committee on Commerce and Industry; adopted by unanimous vote	
Jun. 1961	Passing of the bill in Diet plenary session, promulgation of the Act	

Compiled by the author based on
*White Paper on Nuclear Energy and Genshiryoku geppou (JAEC Monthly), etc.*⁸³
Table 4 Events leading to the enactment of the two laws on nuclear compensation

www.aec.go.jp/jicst/NC/about/ugoki/geppou/V04/N12/19591206V04N12.html

⁸³ Genshiryoku saigai hoshou ni tsuiteno kihon houshin no kettei (Decision on key principles for compensation for nuclear disasters) . *Genshiryoku geppou* 1958.Vol.3,No.11

The basis for deliberations on a compensation scheme for nuclear disasters was laid in the “Key Principles for a Compensation Scheme for Nuclear Disasters”⁸⁴ which was announced by the JAEC in October 1958. It set out the following four principles:

- (1) Implement necessary measures to obligate nuclear reactor licensees, etc. operating a nuclear reactor to ensure its capacity to compensate for potential damage occurring from operation.
- (2) Promote the establishment of nuclear liability insurance under the current Insurance Business Act in order to allow licensees to substantively be prepared with capacities provided for in (1)
- (3) Seek the establishment of a nuclear damage compensation system centered on a privately operated nuclear liability insurance in order to resolve various issues related to nuclear compensation, drawing on developments in other countries.
- (4) Consider further solutions, including Government compensation, in the event the abovementioned measures are prove to be insufficient.

The key principles explicitly provided for the maintenance of financial security centered on private nuclear liability insurance and the consideration of Government compensation in the event such measures were insufficient (when damages exceeded the amounts covered by financial security). The recommendations compiled by the Expert Committee on Nuclear Disaster Compensation on establishing a nuclear compensation scheme had of course been in line with these principles. However, the final decision made by the JAEC and the bill drafted based on the outcome of adjustments made among relevant ministries and agencies drastically deviated from them. A comparison of the recommendations made by the Expert Committee and the final

www.aec.go.jp/jicst/NC/about/ugoki/geppou/V03/N11/195801V03N11.HTML

Genshiryoku hoshou senmon iinkai no toudou (Report by the Expert Committee on Nuclear Disaster Compensation). *Genshiryoku Iinkai Geppou*, 1959. Vol.4, No.12, available at: www.aec.go.jp/jicst/NC/about/ugoki/geppou/V04/N12/19591206V04N12.html

Genshiryoku saigai hoshou seido no kakuritsu ni tsuite (Establishment of a compensation scheme for nuclear disasters). *Genshiryoku Iinkai Geppou*, 1960. Vol.5, No.3, available at:

www.aec.go.jp/jicst/NC/about/ugoki/geppou/V05/N03/196005V05N03.html

Genshiryoku songai no baishou oyobi genshiryoku songai baishou hoshou keiyaku ni kansuru houritsu, seitei (Compensation for nuclear damages and enactment of Act on Indemnity Agreements for Compensation for Nuclear Damage). *Genshiryoku Iinkai Geppou*, 1961. Vol.6, No.6, available at:

www.aec.go.jp/jicst/NC/about/ugoki/geppou/V06/N06/19610616V06N06.html

⁸⁴ Genshiryoku saigai hoshou ni tsuiteno kihon hoshin no kettei (Decision on key principles for compensation for nuclear disasters). *Genshiryoku geppou* 1958.Vol.3,No.11, available at www.aec.go.jp/jicst/NC/about/ugoki/geppou/V03/N11/195801V03N11.HTML

decision made by the JAEC is provided below⁸⁵:

	Recommendations made by the Expert Committee on Nuclear Disaster Compensation (Dec. 1959)	Informal Decision by the JAEC (March 1960)
Liability of operator	Strict, limited and exclusive liability	Strict, unlimited and exclusive liability
Exclusions	In the event of exceptional force majeure (e.g. grave natural disaster of an exceptional character)	same as left
Definition of nuclear accident	Includes normal operation	same as left
Limitation of liability	N.A.	Upper limit of compensation payment is equivalent to the sum covered by financial security and Government compensation amounts. =>No provision of the exact amount of Government compensation nor operator liability caps
Financial security	Given payment amounts covered by financial security Private insurance policies limit: 5 billion yen per facility 1 To be increased based on consideration of underwriting capacity of private insurance	Given payment amounts covered by financial security Private insurance policies limit: 5 billion yen per facility
Options available in event of exceedance of financial security	Government compensation -Maintain balance with other businesses by collecting indemnity fees or reimbursement -Right of reimbursement to be claimed only when intention or gross negligence can be acknowledged -No provision of the exact amount of Government compensation nor operator liability caps	Compensation by operators -Government <u>shall provide operators with monies for damages exceeding measures within a range permissible in accordance with financial circumstances to compensate third parties</u> -Right of reimbursement to be claimed by the Government only when an accident was caused by the operator with intention
Compensation processing body	Administrative committee (Nuclear Damage Compensation Committee)	Not confined to administrative committee (specially designated compensation processing committee)

Compiled by author based on

White Paper on Nuclear Energy and Genshiryoku iinkai geppou (JAEC Monthly), etc.

Table 5 Comparison of Recommendations made by the Expert Committee on Nuclear Disaster Compensation and Informal Decision by the JAEC

A comparison of the recommendations made by the Expert

⁸⁵ Genshiryoku hoshou senmon iinkai no toudou (Report by the Expert Committee on Nuclear Disaster Compensation). Genshiryoku Iinkai Geppou, 1959. Vol.4, No.12, available at: www.aec.go.jp/jicst/NC/about/ugoki/geppou/V04/N12/19591206V04N12.html

Genshiryoku saigai hoshou seido no kakuritsu ni tsuite (Establishment of a compensation scheme for nuclear disasters). Genshiryoku Iinkai Geppou, 1960. Vol.5, No.3, available at: www.aec.go.jp/jicst/NC/about/ugoki/geppou/V05/N03/196005V05N03.html

Committee on Nuclear Disaster Compensation and the decision made by the Atomic Energy Commission reveals that the latter is regressive in terms of Government involvement.

In the recommendations made by the Expert Committee on Nuclear Disaster Compensation, the operator was subject to unlimited liability but the Government was to compensate for damages exceeding the amounts covered by financial security. Hence, the Expert Committee had sought to clarify the Government's liability and explicitly referred to its reasons in its report, which are quoted below (emphasis added by author):

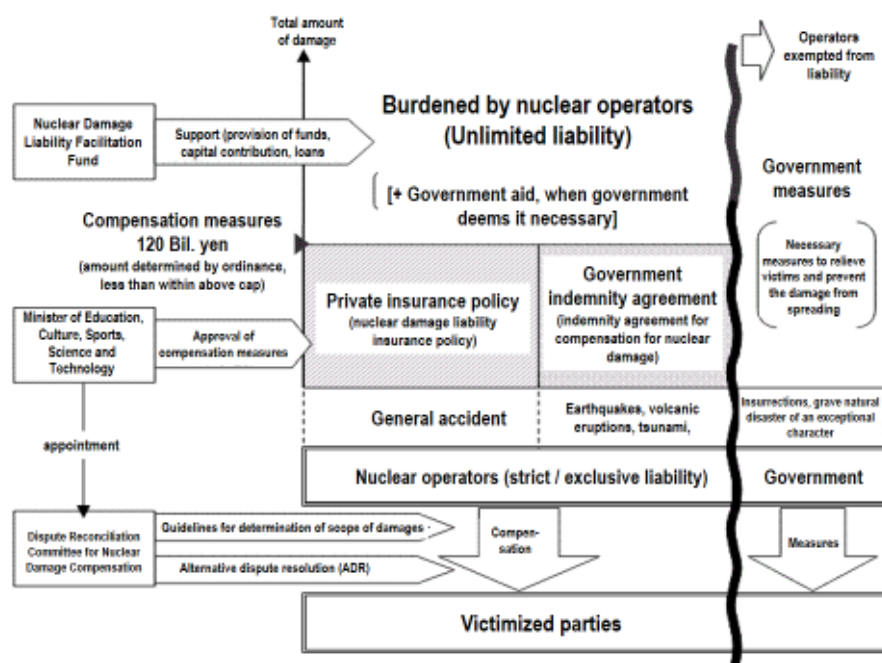
“Nuclear business will, needless to say, deliver significant benefits both academically and industrially, but simultaneously entails risk of incalculable damage in the event of an accident. Furthermore, much is yet to be scientifically revealed regarding its operation. Therefore, so long as the Government has decided upon a policy to foster this business while taking into account various circumstances, it should, of course, make an effort to prevent the occurrence of accidents by taking all possible measures, but at the same time implement appropriate measures so that in the event of an accident, nuclear operators will not have to bear liabilities to the extent that the continuation of business operations is jeopardized, as well as make sure that nuclear operators are subject to heavy liabilities in order to provide victimized parties with sufficient compensation, thus not compelling victims to meekly surrender to the circumstances.”

The underlined point is important as it requires the Government to be fully committed to the prevention of accidents and the provision of compensation for victims, should an accident occur, on the grounds that it was the Government who made the judgment that nuclear technology was a necessity for Japan despite its risks, due to various circumstances. The reasons for the substantial change from the report to the current Nuclear Compensation Act will be elaborated in subsection 3 (“The features of Japan's Nuclear Compensation Act”). An outline of the two laws on nuclear compensation is provided in the table below:

	Act on Compensation for Nuclear Damage (A) Act on Indemnity Agreements for Compensation of Nuclear Damage (B) (March 1962)
Liability of operator	Strict, unlimited and exclusive liability (A Sections 3 &4)
Requirement for exclusion of operator's liability	Insurrections or grave natural disaster of an exceptional character (A Section 3, exceptional clause)
Requirement for exclusion of private insurance's liability	Normal operation; earthquake, tsunamis, and volcanic eruptions; claims filed after ten years since occurrence (B Section 3)
Limitation of liability	No limitations (no provision)
Financial security	Private insurance or deposit (Initially, 5 Bil. yen per facility. Currently, 120 Bil. yen per facility) (A Sections 6-15)
Options available in event of exceedance of financial security	Government aid, when the Government deems it necessary (A Section 16)
Options available in event of absence of liable party (in event of exclusion of operator liability)	Necessary measures to relieve victims and prevent the damage from spreading
Compensation processing body	Dispute Reconciliation Committee for Nuclear Damage Compensation (A Section 18) -Alternative dispute resolution, formulation of guidelines, investigation and evaluation of nuclear damage

Compiled by the author

Table 6 Act on Compensation for Nuclear Damage / Act on Indemnity Agreements for Compensation of Nuclear Damage



www.mext.go.jp/a_menu/genshi_baisho/gaiyou/index.htm

(last accessed on October 12, 2013)

Figure 5 Structure of Nuclear Compensation System

2. History of amendments

The Nuclear Compensation Act has been amended approximately every ten years since its enactment, based on Section 20, which stipulates the term of the law. The following paragraphs will outline the history of the law's amendments. It should be noted that the amounts provided as financial security represent the upper limit of available amounts.

-First amendment (1971)⁸⁶

The limitation of liability on the part of nuclear operators and Government measures were fundamentally discussed in the Expert Committee on the Compensation System for Nuclear Damages. The discussion appears to have been largely influenced by the composition of the committee members. The committee was chaired by Sakae Wagatsuma, Professor emeritus at the University of Tokyo, who had also chaired the Expert Committee on Nuclear Disaster Compensation, the subcommittee was chaired by Eiichi Hoshino, then Professor at the University of Tokyo and previously member of the former Expert Committee, and other committee members were also academics who had been involved in the compilation of the Expert Committee report. However, the deliberations in a total of fourteen Expert Committee meetings and subcommittee meetings were concluded with an opinion statement that, as undermentioned, appears to sympathize with both sides of the argument (emphasis added by the author).

Some opinions requested amendment:

- International agreements and nuclear compensation schemes in the U.S. and Europe place a cap on the compensation payment amounts that nuclear operators are liable for and in the event that nuclear damages exceed the amount covered by financial security, including private liability insurance, government compensation schemes are adopted in order to compensate for damages suffered by victimized parties up to a certain amount.

⁸⁶ *Genshiryoku Iinkai Geppou*, 1970. Vol.15, No.12, available at: www.aec.go.jp/jicst/NC/about/ugoki/geppou/V15/N12/197029V15N12.html

- In Japan, as well, for the purposes of protecting persons suffering from nuclear damage and seeking the sound development of nuclear power business, the ideal way forward would be to draw on these overseas legislations, therefore limiting the liability of nuclear operators to a certain amount and expanding the coverage of government indemnity agreements (“Government compensation”) which is premised upon the collection of appropriate indemnity fees to recover damages exceeding the amounts available through measures such as private insurance policy.

However, there were very strong conservative opinions as well:

- Japan is different from European countries, which share contiguous borders with other countries, and therefore there is no urgent need for Japanese legislation to conform to those of other countries.
- Nuclear power plants are already being constructed under the current nuclear compensation scheme. There have not yet been any events in which the protection of victimized persons and the sound development of nuclear business would be undermined without limitation of liability or expanded Government compensation has undermined, and such events will not necessarily occur in the near future.
- Limiting the liability of nuclear operators to a certain amount would not necessarily be appropriate from the perspectives of public sentiment and recent social conditions.

As a result, these issues were recorded as “issues for future consideration,” although such discussions on the fundamental framework of a nuclear compensation scheme were never reopened during deliberations for the four succeeding amendments. In this first amendment, the financial security amount was increased from the initial amount of 5 billion yen to 6 billion yen.

-Second amendment (1979)⁸⁷

No major amendments were made other than increasing the financial security amount from 6 billion yen to 10 billion yen.

-Third revision (1989)⁸⁸

Having experienced the Chernobyl accident, the Nuclear Compensation Act was associated with and compared with international agreements as well as legislations in other countries. As Asian countries were not parties to either the Paris Convention on Third Party Liability in the Field of Nuclear Energy ("Paris Convention") or the Vienna Convention on Civil Liability for Nuclear Damage ("Vienna Convention"), the two international conventions which had already entered into effect at that time, the Nuclear Compensation Act was amended to provide that should a nuclear accident occur in a neighboring country, intergovernmental negotiations shall be conducted and damage may be addressed by ex post facto laws as necessary. Discussion of this issue was to be continued.

The financial security amount was increased from 10 billion yen to 30 billion yen.

-Fourth revision (1999)⁸⁹

This revision presented the idea that the concepts of environmental damage and preventive measure costs would be included in nuclear damages. Discussions were held on whether the requirements for exclusion should be amended as the Vienna Convention which had been amended the previous year no longer exempted liability in "a grave natural disaster of an exceptional character." It was concluded that those suffering damages were sufficiently protected under Section 17 which provides for Government

⁸⁷ Genshiryoku Iinkai Geppou, Vo.24, No.11, available at:
www.aec.go.jp/jicst/NC/about/ugoki/geppou/V24/N11/197904V24N11.html

⁸⁸ Report by the Expert Committee on the Compensation System for Nuclear Damages, December 2, 1988, available at:
www.aec.go.jp/jicst/NC/about/ugoki/geppou/V33/N12/198808V33N12.html

⁸⁹ Report by the Expert Committee on the Compensation System for Nuclear Damages, December 11, 198, available at:
www.aec.go.jp/jicst/NC/iinkai/teirei/siryo98/siryo70/siryo12.htm

compensation and an amendment would not be necessary.

The financial security amount was raised from 30 billion yen to 60 billion yen.

-Fifth amendment (2009)⁹⁰

The Nuclear Compensation Act had been applied for the first time in the JCO accident, which occurred immediately after the previous amendment. In order to draw on this experience, the Panel on Reviewing the Nuclear Compensation System was established under the Director General of the Research and Development Bureau of the Ministry of Education, Culture, Sports, Science and Technology (MEXT). Six meetings were held (from June 2008, chaired by Toyohiro Nomura, Professor of Gakushuin University, Faculty of Law), but the JCO accident did not lead to the fundamental revision of Japan's nuclear compensation system because, as elaborated in after-mentioned comparisons with the TEPCO Fukushima accident, it had embraced many circumstances unique to the accident. The JCO accident had been caused by actions of high illegality on the part of the operators, the number of persons who suffered damages was limited, the compensation payment amount could not be afforded by the operator itself but could be fully covered with the support of its parent company, and the operator that caused the accident was not a general electric utility bearing responsibilities for supplying electricity. Hence, this amendment only improved operational aspects of the act by establishing guidelines on the use of the Dispute Reconciliation Committee for Nuclear Damage Compensation ("Dispute Reconciliation Committee").

The financial security amount was increased from 60 billion yen to 120 billion yen.

⁹⁰ Panel on Reviewing the Nuclear Compensation System on MEXT website: www.mext.go.jp/b_menu/shingi/chousa/kaihatu/007/index.htm; www.meti.go.jp/committee/materials2/downloadfiles/g81209c06j.pdf

3. The features of Japan's Nuclear Compensation Act

i) Purpose: “protection of victimized persons” and “sound development of nuclear business”

Japan's Nuclear Compensation Act is a special law on the law of torts stipulated in Section 709 and succeeding sections of the Civil Code which “completes the framework of conflict resolution between private persons.”⁹¹ It also stipulates two purposes, as does the nuclear compensation laws of other countries, namely, the “protection of victimized persons” and the “sound development of nuclear business.”

However, the very purpose of this Act was the target of heated debate within the government upon its legislation. There were strong demands for the deletion of the “protection of victimized persons” from the purpose of the law on the grounds that the government could implement supportive measures for the fostering of a business but could not assume responsibility for the protection of persons victimized by such business operations. Discussions led to leaving the call for public protection in the provision, but it has been indicated that the concept can be found redundantly in the framework of the law.⁹²

The two purposes appear to be completely independent of each other, but have a mutually synergetic effect: “Only when nuclear business develops soundly and the financial resources required for potential compensation payments are therefore accumulated, can any promise to compensate victims become realistic, and only when victim relief is ensured can the siting of nuclear power plants be promoted based on a sense of assurance among local residents, therefore enabling the sound development of nuclear business.”⁹³ Prior to the

⁹¹ Tanabe, Tomoyuki, M. Maruyama. Fukushima Daiichi Genshiryoku Hatsudensho Jiko ga Teikishita waga kuni no genshiryoku songai seido no kadai to sono kokufuku ni muketa seido kaikaku no houkousei (The issues concerning Japan's compensation system for nuclear damages raised by the accident at Fukushima Daiichi Nuclear Power Plant and the direction of system reforms to overcome the challenges), Central Research Institute of Electric Power Industry (2012)

⁹² Sakae Wagatsuma, Takeo Suzuki, Ichiro Kato, Ryo Inoue, Katsuji Fukuda, Seisho Horii, Shozo Nagasaki, Keiichiro Sugimura. Zadankai: genshiryoku saigai hoshō wo megutte (Round-table: compensation for nuclear damages), *Jurist* No.236, October 15, 1961

⁹³ Tanabe, Tomoyuki, M. Maruyama. Fukushima Daiichi Genshiryoku Hatsudensho Jiko ga Teikishita waga kuni no genshiryoku songai seido no kadai to sono kokufuku ni muketa seido kaikaku no houkousei (The issues concerning Japan's compensation system for

TEPCO Fukushima accident, emphasis on this synergetic effect might have had the effect of generating a shared understanding among concerned parties that even if damages exceeding an operator's financial resources occurred, Government aid could be expected with high certainty⁹⁴. Given that Section 16 of the Nuclear Compensation Act does not provide for unconditional Government aid, the relationship between these two purposes, in this context, would be better referred to as a trade-off.

In the JCO accident, damages exceeded the financial security amount (1 billion yen) by large, surging to as much as approximately 15.4 billion yen. As aforementioned, the accident was characterized by special circumstances, such as that it had been caused by actions of high illegality on the part of the operators, that the damage was limited, that the compensation payment amount could not be afforded by the operator itself but could be fully covered with the support of its parent company, and that the operator that caused the accident was not a general electric utility responsible for supplying electricity. It was made apparent in this accident that Government aid would not automatically be offered, but even given this experience, succeeding amendments of the Nuclear Compensation Act failed to fundamentally resolve the risks embraced by the Act, therefore allowing not only nuclear operators but many other concerned parties including financial institutions to continue to believe that they could expect Government support in the face of a nuclear accident. This was presumably a consequence of the context in which nuclear business developed. Nuclear business has been “privately run under national policy” from its introductory phase and this framework was enhanced as nuclear operators evolved into a “nuclear back end risk consortium”, as described in the subsection on

nuclear damages raised by the accident at Fukushima Daiichi Nuclear Power Plant and the direction of system reforms to overcome the challenges), (Central Research Institute of Electric Power Industry, 2012)

⁹⁴ Tanabe, Tomoyuki, M. Maruyama. Fukushima Daiichi Genshiryoku Hatsudensho Jiko ga Teikishita waga kuni no genshiryoku songai seido no kadai to sono kokufuku ni muketa seido kaikaku no houkousei (The issues concerning Japan's compensation system for nuclear damages raised by the accident at Fukushima Daiichi Nuclear Power Plant and the direction of system reforms to overcome the challenges), (Central Research Institute of Electric Power Industry, 2012) . It should be noted that this report expresses what is referred to as a “trade-off” herein as “having conflicting features.”

the historical context of nuclear business.

ii) Operators' unlimited liability

The most important feature of Japan's Nuclear Compensation Act is that it imposed unlimited liability upon nuclear operators. Section 16 of the Nuclear Compensation Act stipulates that in the event damages exceeding the financial security amount occur, "the Government shall give a nuclear operator [...] such aid as is required for him to compensate the damage [...] when the Government deems it necessary in order to attain the objectives of this act" (which include the protection of victimized persons and the sound development of nuclear business)" (paragraph 1). "Aid as provided for in the preceding paragraph shall be given to the extent that the Government is authorised to do so by decision of the National Diet." (paragraph 2) Hence it is explicit that liability is attributed to nuclear operators and the Government is only in the position of providing indirect aid to operators. "Aid" is not defined in the act itself or any of its subordinate laws, nor are any criteria provided other than the ambiguous condition when the Government "deems it necessary." As the Government may make decisions based on arbitrary interpretations, this poses great risks for those financing nuclear business. The Government refrained from providing aid in the JCO accident of 1999, and hence, the details of Section 16 of the Nuclear Compensation Act was defined for the first time in the Nuclear Damage Compensation Facilitation Corporation Act ("Facilitation Corporation Act") enacted after the TEPCO Fukushima accident.

With unlimited liability, the operator cannot foresee its financial future which impedes the achievement of the "sound development of nuclear business," a purpose of the Nuclear Compensation Act. Given the adoption of an strict liability regime which sets wide limits on reasons for exclusion from liability, imposing unlimited liability under such strict conditions could also be viewed as lacking in legal balance. Hence, many countries utilizing nuclear power have set ceilings upon the liability amounts to be paid by operators (although in Germany and Switzerland, such limitation of liability has been abolished). As Hoshino

(1961)⁹⁵ states, “it should be clearly understood that, be that as it may formally, in effect, unlimited liability does not serve to protect victimized parties. Such a scheme will push operators into bankruptcy, only to entitle victimized parties to equal footing with other creditors.” Hence, it should be noted that imposing unlimited liability upon operators would seem to be protective of victims, but does not mean that their financial sources for compensation are unlimited.

As aforementioned, the Expert Committee on Nuclear Disaster Compensation recommended that when damages exceeded the financial security amount, Government compensation should be provided (December 1959). It brings us to wonder how these recommendations led to unlimited liability.

Prior to legislation, electric power companies naturally expressed their opposition to bearing unlimited liability. Some of these opinions were delivered at the third⁹⁶ and fourth⁹⁷ meetings of the JAEC advisory committee. These included objections against weakened government involvement:

- Soichi Matsune, Vice-Chairman, Federation of Electric Power Companies (FEPC) (Third meeting of the JAEC advisory committee)

“The purpose of the nuclear compensation system is to provide third parties with assurance as well as to promote cooperation between the private sector and the government to give nuclear business a boost. However, this proposal has deviated from what had originally been conceptualized because it seems to say that we will be allowed to make money with nuclear power but if we make a mistake we will be penalized. We may arrive at points where we have to make compromises in our negotiations at the working level with the Ministry of Finance, but decisions must be made based on the general idea of promoting

⁹⁵ Hoshino, Eiichi. Genshiryoku songai baishou ni kansuru hutatu no jouyakuan (Two proposals for international agreements on nuclear compensation). *Jurist* No236 (Oct. 15, 1961) P48

⁹⁶ Third meeting of the Japan Atomic Energy Commission advisory committee on March 17, 1960, available at www.aec.go.jp/jicst/NC/about/ugoki/geppou/V05/N04/196004V05N04.html

⁹⁷ Fourth meeting of the Japan Atomic Energy Commission advisory committee on June 2, 1960, available at www.aec.go.jp/jicst/NC/about/ugoki/geppou/V05/N07/196006V05N07.html

technological development.”

“I do not intend to say that we must follow the footsteps of other countries, but given examples from overseas, I just find it problematic that we should have to fall behind them. I would hope that the ministers and commissioners of the JAEC would thoroughly consider whether this is really the right choice to make in light of promoting nuclear business.”

- Katsuji Fukuda, Managing Director, JAPC (Third meeting of the JAEC advisory committee)

“The Government is required to be involved [in the U.K., the U.S. and Germany], while in Japan the principle and exception are reversed, based on the notion that the Government will support nuclear business but does not need to be as involved. Compared with the outline proposed in past expert committee meetings and industrial meetings, I feel that we have taken a step backward on this point. Given the Government’s lack of enthusiasm towards nuclear business, I am worried whether this is the right stance for it to take. I am also concerned about how to address the issue of electricity tariffs increasing when insurance is used to cover for contingent damages.”

“I would hope that in principle, the Government is to assume such compensation payments.”

“I am also dissatisfied with the idea that operators bear unlimited liability when strict and exclusive liability is already imposed upon them.”

- Ryokichi Sagane, Advisor, JAPC (Fourth meeting of the JAEC advisory committee)

(In response to the explanation by Inoue, Manager of the Policy Division under the Nuclear Energy Bureau, Ministry of International Trade and Industry, that the bill had been submitted to the National Diet in May and was under deliberation) “Does that mean that it has now left the hands of the JAEC and cannot be revised?”

(In response to Chairman Sakae Wagatsuma’s question on which points he felt were setbacks compared to the recommendations made by the Expert Committee) “To start with, some examples would be: 1) the definition of “nuclear damage” is unclear from a scientist’s perspective and may arouse issues on whether certain damage constitutes nuclear

damage when an accident actually does occur; and 2) the wording in Section 16 remains inexplicit.”

However, as Hoshino (1972) points out⁹⁸, it should also be understood that operators had “jumped” at the opportunity of engaging in nuclear business and voluntarily consented to unlimited liability in order to increase acceptance among local residents of potential nuclear plant sites. The following is a quote of the relevant passage:

“On the other hand, Japan’s nuclear industry embraced inherent problems. To begin with, the Japanese nuclear industry has developed in a different context compared with that in other countries. In all countries, with the exception of the U.S., where private companies are very strong, private companies are unlikely to so easily jump at a business that entails risk of accident and is problematic in terms of short-term profits. Therefore, Governments engage in the initial development of such a business from a long-term energy policy perspective and gradually brings it down to the corporate level. Private companies are reluctant about becoming involved in such a business not only because of their viability but also because of concerns related to compensation for damages; and hence, compensation laws are formulated based on the concept that the Government will provide adequate support. However, in Japan, companies have raced to seize the nuclear industry as if to jump on to a bus and have found themselves in intense competition with foreign companies. Under such circumstances, Japanese companies cannot enjoy the internationally prevailing logic that companies are asked to assume the risks entailed for the sake of long-term national policy and in return will not have to concern themselves about the largest issue of damage compensation. Therefore, companies have no grounds to object to opinions that such businesses “should be addressed at a company’s own risk if it was so interested in becoming involved.”

⁹⁸ Hoshino, Eiichi. Symposium: Genshiryoku saigai hoshou (Symposium: Compensation in nuclear disaster). *Minporonshuu dai3kan (Civil law papers Vol. 3)*, P436; Hoshino, Eiichi. Nihon no genshiryoku songai baishou seido (Nuclear compensation system in Japan). *Nichidoku hikaku genshiryokuhou: dai 1 kai nichidoku genshiryokuhou symposium: (Japan-Germany comparative nuclear energy law: the first Japan-Germany nuclear energy law symposium)*

It should be noted that the author has received comments from those who are familiar with the context in which the law was legislated that the Professor emeritus Hoshino has captured the situation well.

The retrogressive approach regarding Government involvement was deemed problematic not only among nuclear operators but also in the National Diet. For example, in the thirteenth meeting of the Promotion of Science and Technology & Innovation Special Committee of the 38th Session of the Diet⁹⁹, in response to the question, “Does the purpose of the bill include the idea that damages exceeding the amount covered by private insurance should be compensated by taking necessary measures, including legislation that explicitly stipulates the Government’s liability for damages?” Yasuhiro Nakasone, then Minister of State stated, “[...] It should not be left solely to operators, and therefore the idea is that for damages exceeding the private insurance amount, third parties shall be protected through Government involvement based on the indemnity agreement. Also, when damages exceed 5 billion yen, the Government is to take action and protect victims within the authority granted by the Diet. In this sense, I believe that the idea is that private companies and the national government should cooperate in implementing measures for third parties.” Further questioned, he explained in detail, “In other words, when damages exceed 5 billion yen and an operator has the financial sources to compensate victims on its own, the operator shall assume the portion which it is objectively capable of paying. However, third parties should naturally be compensated for damages exceeding such amounts and up to the damage amount objectively acknowledged, and we believe that this portion would be compensated in full by the government.” (Emphasis added by the author.) Minister Nakasone went on to say, “[Article 16, paragraph 1 of the Nuclear Compensation Act] stipulates that the Government ‘shall give’ which is not as strong as ‘is required to give’ but is intended to mean that the Government ‘will’ do so. Therefore, given such clear indication of the Government’s will to compensate what cannot be covered by the nuclear operator, the

⁹⁹ kokkai.ndl.go.jp/SENTAKU/syugiin/034/0068/03405180068013a.html

provision can be literally read to mean that there will not be any loopholes.”

Deliberation on the nuclear compensation bill was procrastinated for continued discussion as national security talks led to disarray at the 34th Diet session. The bill was later withdrawn and resubmitted to the 38th Diet session in 1961, the following year, accompanied by the bill on Indemnity Agreements for Compensation for Nuclear Damage regarding government indemnity agreements¹⁰⁰.

The comment made by Mikio Mizuta, Minister of Finance, is representative of the stance taken by the Ministry of Finance, which had opposed the recommendation made by the Expert Committee on Nuclear Disaster Compensation, but simultaneously carefully avoids making any clear statements. Questioned about the details of government aid at a meeting of the House of Representative’s Promotion of Science and Technology & Innovation Special Committee of the 38th Session of the Diet, Finance Minister Mizuta replied, “As many different situations can be expected, there are many different potential ways of providing aid depending on the contents and form of damage as well as many other elements, but we do not yet have a clear idea.” Asked again about the Government’s determination as well as what would constitute Government aid, he referred only to the fact that the issue would be left up to the Diet’s judgment. “[...] We will do what the Government has the authority to do, and when the Government does not have authority, it would mean that we would have to take budgetary measures approved by the Diet.” When asked, “Why did the Ministry of Finance weaken the bill [on Nuclear Compensation: complemented by the author] when we cannot expect nuclear business to develop unless the framework provides for the Government to take the initiative in assuming compensation payments?” he replied in one lengthy sentence that obscured the main point. His comment is provided below:

“It is formally best to primarily compensate damage by utilizing insurance schemes provided by private insurance companies and let the Government be responsible for what cannot be covered by such

¹⁰⁰ Nuclear Energy Bureau, Science and Technology Agency eds. *Genshiryoku songai baishou seido (Nuclear compensation system)* (1962) P23

means, and that is why we have formally adopted this approach, but when it comes to utilizing private insurance, what has been reinsured with a foreign insurance company, which would naturally have certain limitations for what it can insure, will be limited to that given scope, and if matters extend beyond that scope, then it would mean that the expected disaster is not so small in scale, in which case, viewing how the current Diet works, it would not be left as is, and so the Government would, apart from this, implement a variety of measures, so formally speaking, the insurance scheme would be primarily utilized and mainly using this, what exceeds this amount – looking at overseas examples, there have not been a single major disaster, and although there have been a few small disasters which have been recovered solely by the nuclear operator, there have been none which required payment from insurance companies¹⁰¹, and based on these circumstances, I still believe that we should formally begin from here.” Mizuta was intent on not explicitly referring to Government involvement, which could even imply that there had not been consensus among Cabinet members.

Passed as law in this context, the Nuclear Compensation Act comprised a framework in which nuclear operators assumed unlimited liability and the Government supported compensation payments. The reason is implied in the statement made by sworn witness, Sakae Wagatsuma said at a meeting of the House of Representative’s Promotion of Science and Technology & Innovation Special Committee of the 38th Session of the Diet held on April 26, 1961. He said, ”I have heard that in principle, the Government will compensate for all damages, but it was later decided that it would not be formally set out that compensation payments would be made using Government expenditures, because of opposition mainly coming from the Ministry of Finance.” Thus it is presumable that there was strong resistance within the government – in the Ministry of Finance – against limiting the liability of operators and legally imposing liability upon the Government. It was also debated that setting a ceiling on compensation payments for nuclear damage could potentially constitute an

¹⁰¹ Takemori, Shunpei. *Kokusaku minei no wana* (The trap of private businesses led by national policy) (Nihon keizai shimbun shuppansha, 2011) P194-

infringement of property rights, and thus a breach of the Constitution¹⁰². This is a natural contention under the circumstances that infringement of victims' property rights cannot be avoided by certain measures including Government involvement. A similar argument was presented in court when the constitutionality of limiting the liability of nuclear operators to a certain amount was challenged in the U.S. (*Duke Power Co. v. Carolina Env. Study Group*, 438U.S.59 (1978)). The court ruled that such measures were constitutional. (This case will be discussed in detail in Part I, Chapter 5.)

In a symposium on nuclear disaster compensation held after the enactment of the law, Professor Sakae Wagatsuma criticized it, saying that the adopted law and the report stood on completely different concepts. "The peaceful use of nuclear power is an unprecedented operation in history. Its benefits may be large, but at the same time, it entails risks of grave damage in case of an accident. Therefore, if the government acknowledges the need to accelerate its benefits and decides to go on with it, it should be based on the premise that the government will make sure that not a single victim will be compelled to meekly accept damages." That having been said, he stated that the government, "disguised in the name of operator support and protection, will only indecisively provide 'aid' (Section 16). In practice, victims will be protected by the wisdom of the government and the Diet."¹⁰³ The late Akio Takeuchi, then associate professor and later professor emeritus at the University of Tokyo, pointed out that it would be an ideal framework if, as stipulated in the law, it promised to provide unlimited aid as is required to compensate for the damages, but if the reason that the legislation's deviation from the concept of the report was a reflection of judgment within the government that the government lacked the financial capacity to accept it, it would imply "regression" in terms of government involvement, and would therefore put operators in anxiety. Furthermore, he stated that "when the Promotion of Science and

¹⁰² Wagatsuma, Sakae, Takeo Suzuki, Ichiro Kato, Ryo Inoue, Katsuji Fukuda, Seisho Horii, Shozo Nagasaki, Keiichiro Sugimura. *Zadankai: genshiryoku saigai hoshou wo megutte* (Round-table: compensation for nuclear damages), *Jurist* No.236, October 15, 1961

¹⁰³ Wagatsuma, Sakae. *Genshiryoku nihou no kousou to mondaiten* (The framework and flaws of the two nuclear power-related laws), *Jurist* No.236

Technology and Innovation Special Committee of the House of Representatives adopts a peculiar resolution accompanying the enactment of the law that reads, ‘in order to ensure that victims will be thoroughly protected to the last person, the government should provide adequate aid, and simultaneously, in accordance with the purpose of protecting victims, provide guidance [...] to operators [...] on reserving earnings’, it is doubtful whether the government and Diet have any intention to provide support for operators without fail.”¹⁰⁴

In conclusion, as Professor Sakae Wagatsuma said as sworn witness at a meeting of the Promotion of Science and Technology and Innovation Special Committee of the House of Representatives of the 38th Session of the Diet, despite concerns that the law in practice would be dependent on the wisdom of the Government and Diet, it was understood to be “no different from indemnification, in effect,”¹⁰⁵ to the extent that wisdom prevailed. Hence, the legal structure of the act underwent no changes until the TEPCO Fukushima accident. As aforementioned in the subsection about the historical context of amendments, limited liability of nuclear operators was deliberated in discussions for only one out of the five amendments made to the Act.

iii) Provision for exclusion of liability and Government “measures” in case of exclusion of liability

As aforementioned, the Nuclear Compensation Act is considered to be a set of special provisions to the law of torts in the Civil Code. Normally, tort liability under the Civil Code is acknowledged only when the four requirements, namely, the illegality of the action (infringement of a right), intention or negligence on the part of the victimizer (failure to observe duty of care and duty to avoid risk), occurrence of damage, and adequate causation between the action and damage, are satisfied. However, in order to facilitate the procedures for claiming damages and

¹⁰⁴ Takeuchi, Akio. Genshiryoku songai nihou no gaiyou (Outline of Two Laws Concerning Nuclear Damage), *Jurist* No236

¹⁰⁵ Genshiryoku songai no baishou oyobi genshiryoku songai baishou hoshou keiyaku ni kansuru houritsu, seitei (Compensation for nuclear damages and enactment of Act on Indemnity Agreements for Compensation for Nuclear Damage). Genshiryoku Iinkai Geppou, 1961. Vol.6, No.6, available at: www.aec.go.jp/jicst/NC/about/ugoki/geppou/V06/N06/19610616V06N06.html

to provide sufficient protection for victims, the Nuclear Compensation Act stipulates, as in similar laws in other countries, that nuclear operators which have set up reactors bear strict liability (Section 3).

However, as it would be too severe to hold operators liable for damages at all times under all circumstances, many international agreements and nuclear compensation schemes in many other countries provide for exclusions. Japan's Nuclear Compensation Act stipulates, "except in the case where the damage is caused by an exceptionally grave natural disaster or by an insurrection." Some countries such as Germany and Switzerland do not allow for any exclusions whatsoever, while others such as the U.S. and the U.K. grant exclusion in the event of war or armed conflict. Japan's exceptional clause is found in Section 3, paragraph 1. Ichiro Kato, professor at the University of Tokyo explains that "Japan could have taken the approach of leaving room for no exclusions, but given high concerns for earthquakes in Japan, it would be illogical to have operators bear liability for everything, as we can never be careful enough in siting reactors when all of Japan, so to speak, sits on a seismic zone."¹⁰⁶ The scope of events which constitute exclusion does not automatically relate to the heaviness or lightness of victim protection and should be considered multi-dimensionally, in the context of its relationship with insurance and particularly Government compensation¹⁰⁷. However, the ambiguity of the definition of "an exceptionally grave natural disaster" led to intensive discussion regarding the criteria for acknowledging such events.

Asked to express the magnitude of such disasters in terms of an earthquake at the 9th meeting of the Promotion of Science and Technology & Innovation Special Committee of the 38th Session of the Diet¹⁰⁸, Bunkichi Yuzuriha, Office of the Prime Minister clerk (Director

¹⁰⁶ Sakae Wagatsuma, Takeo Suzuki, Ichiro Kato, Ryo Inoue, Katsuji Fukuda, Seisho Horii, Shozo Nagasaki, Keiichiro Sugimura. *Zadankai: genshiryoku saigai hoshou wo megutte* (Round-table: compensation for nuclear damages), *Jurist* No.236, October 15, 1961

¹⁰⁷ Symposium: Genshiryoku saigai hoshou (Symposium: Compensation in nuclear disaster. Hoshino, Eiichi. *Minji sekinin no mondai* (Issues of civil liability). *Shiho* Vol.22

¹⁰⁸ Proceedings of the ninth meeting of the Promotion of Science and Technology & Innovation Special Committee of the 38th session of the Diet, available at: kokkai.ndl.go.jp/SENTAKU/syugiin/038/0068/03804120068009a.html

General, Nuclear Energy Bureau, Science and Technology Agency) replied, “I would say, earthquakes twice or triple the size of the Great Kanto Earthquake, or even larger than that. That is how we have interpreted it.” In response to a question about who would make that judgment, he answered that the Science and Technology Agency, as supervising agency, would judge whether the exceptional clause could be applied to an event, with the involvement of the JAEC and that decisions could be fought in court should there be any objections. The Government declared at a significantly early time after the Great East Japan Earthquake that the exceptional clause would not apply, and if it were to follow Yuzuriha’s explanation, the current supervising government authority, Ministry of Education, Culture, Sports, Science and Technology (MEXT) should present the grounds on which it had arrived at that conclusion. However, Yoshiaki Takagi, Minister of Education, Culture, Sports, Science and Technology only provided the conclusion and failed to reveal the process which led to such judgment¹⁰⁹.

At the 14th meeting of the Promotion of Science and Technology & Innovation Special Committee 38th Session of the Diet, Professor Sakae Wagatsuma referred to events to which exclusion of liability is applicable as “extraordinary force majeure,” which was unlikely to occur. In response to opinions that if such an event was unlikely to occur, there should be no need to insert an exceptional clause, Wagatsuma said that it was needed in order to counterbalance the imposing of unlimited liability upon private companies and “it wouldn’t make sense to hold them liable for something beyond human prediction.”¹¹⁰ Other interpretations of “an exceptionally grave natural

¹⁰⁹ Asked at a meeting of the Upper House’s Committee on Education, Culture, Sports, Science and Technology of the 177th Session of the Diet, the view held by MEXT, the supervising authority of the nuclear compensation scheme), Takagi answered that “[the situation assumed in the exceptional clause of Section 3, paragraph 1,] is described to be one of a large magnitude, unexpected by humans and beyond all imagination. It is my understanding that nuclear operators shall not be granted exclusion from liability unless it is too severe to hold such nuclear operators liable.” That having been said, he concluded, “Based on what I have said, we have judged that the main clause of Section 3, paragraph 1, instead of its exceptional clause should be applied.”

¹¹⁰ Fourteenth meeting of the Promotion of Science and Technology & Innovation Special Committee of the 38th session of the Diet, available at: kokkai.ndl.go.jp/SENTAKU/syugiin/038/0068/03804260068014a.html

disasters” are provided in Part II, Chapter 2, subsection 1-(4) which discusses confusion regarding operator liability.

There has also been discussion on whether to provide the events required for exclusion from liability in a detailed list. In a symposium on nuclear disaster compensation, Eiichi Hoshino, an associate professor at the University of Tokyo indicated that the advantages of providing more detailed examples of events would be that judgment would be facilitated, conflict could be avoided to some extent in the event of an accident, and as a result, compensation payments could be made more promptly, but also made note of the scientifically technological and legally technical obstacles in doing so. The phrase “exceptionally grave natural disasters” of the exceptional clause of Section 3, paragraph 1 of the Nuclear Compensation Law was formulated based on then OEEC’s wording, “a grave natural disaster of an exceptional character” and the IAEA proposal of “unforeseeable and unavoidable force majeure.” However, it should be noted that the “an exceptionally grave natural disaster” as worded in the Japanese Act is a significant deviation from the original phrase. If the provision was to be true to the original phrase, it is the “character” of the natural disaster that humans have never before experienced that matters, and therefore, earthquakes and tsunamis, which we have already experienced in the past would not apply, regardless of their magnitude. Although it is unclear whether the Japanese wording was a result of misinterpretation, or as indicated by Ichiro Kato, professor of the University of Tokyo, based on the recognition that it would be illogical to exclude all earthquakes, Japan adopted the phrase “exceptionally grave”; thereby providing for judgment on the graveness of an event, instead of its character, in order to acknowledge whether the exclusion of liability could be applied.

In terms of how victims are to be compensated in the event an operator is excluded of liability under the exceptional clause of Section 3, paragraph 1, the Nuclear Compensation Act, Section 17 provides that “the Government shall take the necessary measures to relieve victims and to prevent the damage from spreading.” Here again, the Government is not a direct indemnitor but shall only take measures

such as those taken under general disaster relief laws ¹¹¹. Sakae Wagatsuma, Chairman of the Nuclear Disaster Compensation criticized the adopted law in *Genshiryoku nihou no kousou to mondaiten* (*The framework and flaws of the two nuclear power-related laws*), saying that the “Government measures are greatly indifferent” compared to limiting the operators’ liability and letting the Government provide aid when damages exceed the financial security amount of 5 billion yen, “because, the adopted law, under which it is unthinkable that the Government would take any responsibility for what nuclear operators are not liable for, and the recommendations stand on fundamentally controversial concepts.”

¹¹¹ Sakae Wagatsuma, *Genshiryoku nihou no kousou to mondaiten* (The framework and flaws of the two nuclear power-related laws), *Jurist* No.236

Chapter 5 Legal frameworks in other countries and international agreements

1. The U.S. Price Anderson Act¹¹²

As aforementioned in Chapter 2, given the former U.S.S.R.'s declaration of its possession of nuclear energy, the U.S. drastically changed its nuclear policy and thus concluded agreements on cooperation in nuclear research with other countries and began to engage the private sector in promoting the peaceful use of nuclear energy. However, as “the actual level of maturity and cost-effectiveness of nuclear power generation technologies did not promise corporate profits”¹¹³ at the time, companies that were invited to join the federal government's nuclear development plan contended that they could not participate in the plan unless the government took a clear stance on technology development and “public liability”¹¹⁴ in the event of an accident. Based on such contentions, in 1957, the U.S. government enacted the Price-Anderson Act, which stipulates its system for nuclear damage compensation, as a partial amendment to the Atomic Energy Act. The Price-Anderson Act provided for government compensation in the event damages exceeded 60 million dollars covered by private liability insurance. With the incorporation of a mutual assistance scheme among operators later in 1975, the Act has been greatly changed from its original form in terms of the character of its liability regime and its method of collecting monies for compensation.

The Price-Anderson Act was enacted for the two main purposes of:
i) eliminating the fears held by nuclear operators that if an accident should occur they would potentially be liable for enormous

¹¹² Sec. 170 of the Atomic Energy Act of 1954 U.S.C.2210 Section 170 can be found in Volume 1. Page1-113 pbadupws.nrc.gov/docs/ML1327/ML13274A489.pdf

¹¹³ Shimoyama. *Mirai shakai to hou* (Future society and law), P454

¹¹⁴ Different Japanese translations of the term “public liability” have been used in Shimoyama. *Mirai shakai to hou* (Future society and law), P455, Utatsu. *Gendai genshiryokuhou no tenkai to houriron dai 2 han* (The development and legal theory of modern nuclear energy law, second edition), P38 and Japan Energy Law Institute. *Genshiryoku songai baishou housei shuyou kadai kentoukai houkokusho* (Report of the Panel on Major Issues Regarding a Legal Framework for Nuclear Compensation) (May 2005). This report has been written in line with the terminology used by Shimoyama.

compensation payments, and thus encourage their participation in nuclear research and development as well as business; and ii) securing financial protection to ensure adequate compensation to victimized parties. This approach of including both the promotion of sound business by providing a certain level of support for operators and guaranteeing the recovery of damages suffered by the victims of a nuclear disaster are common among nuclear compensation schemes around the world, including that of Japan.

The current Price-Anderson Act comprises a liability insurance (Tier 1) and an ex-post-levy-collection-based mutual assistance program (Tier 2).

When it was first enacted in 1957, the Price-Anderson Act provided that damages which exceeded the amounts covered by the liability insurance (Tier 1) would be addressed by government compensation. It was later amended in response to calls for more extensive public protection and claims from mainly the coal industry that the government was overprotective of the nuclear industry, to include a second tier, or a mutual assistance program.¹¹⁵

Currently in the U.S., 375 million dollars in liability insurance and 12.22 billion (11.19 dollars \times 1.05¹¹⁶ \times 10⁴ reactors) under the mutual assistance program collectively constitute financial protection amounting to an equivalent of 1.2 trillion yen. If nuclear damages should exceed this amount:

- 1) The Nuclear Regulatory Commission (NRC) or Department of Energy (DOE) (the supervising authority) shall make a survey of the causes and extent of the damage and submit a report setting forth the results of such survey to the Congress, to the Representatives of the affected districts, to the Senators of the affected States, to the parties involved, and to the courts. (Section 170 (i)(1))
- 2) Not later than 90 days after any determination by a court that the public liability from a single nuclear incident may exceed the applicable amount of aggregate public liability the President shall

¹¹⁵ Utatsu, Noboru. *Gendai genshiryokuhou no tenkai to houriron dai 2 han* (The development and legal theory of modern nuclear energy law, second edition) (Nihonhyouronsha, 2012) P39

¹¹⁶ Includes legal costs equivalent to 5% of surcharge (Section 170 e(1)(A))

submit to the Congress recommendations for additional sources of funds to pay claims exceeding the applicable amount of aggregate public liability and recommendations that funds be allocated or set aside for the payment of claims that may arise as a result of latent injuries that may not be discovered until a later date (Section 170 (i)(2))

- 3) The abovementioned recommendations for additional sources of funds to pay claims exceeding the applicable amount of aggregate public liability shall consider a broad range of possible sources of funds (including possible revenue measures on the sector of the economy). (Section 170 (i)(2)(B))

The first and second piers set limits to liabilities and thus ensures the foreseeability of nuclear business, while leaving room for Congress to make judgments depending on the size of damage, as the magnitude of nuclear damages are “only to be known when they occur.” It was also noted during our Committee meetings that not only the U.S. but many other countries have adopted similar schemes.

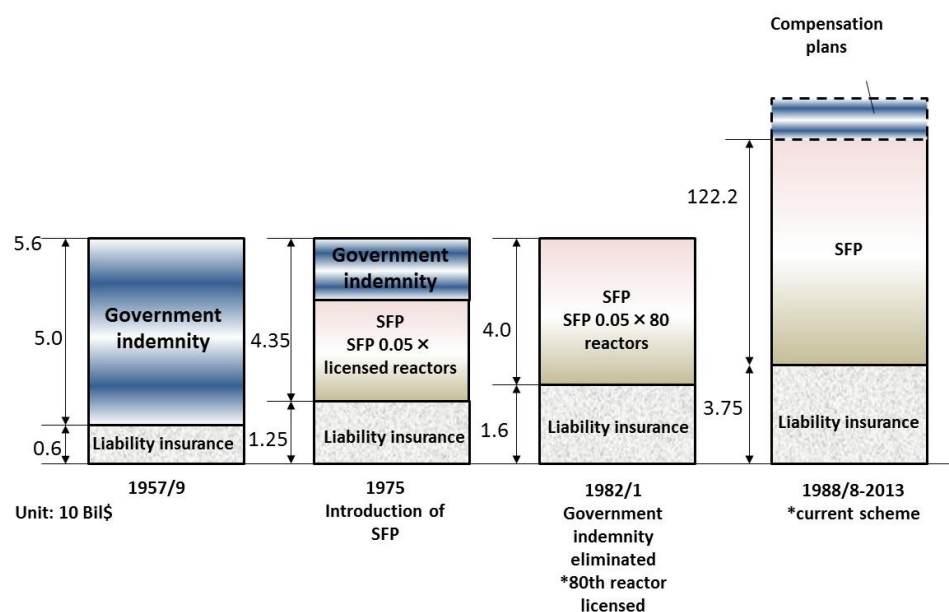


Figure 6 Transition of the structure of the Price-Anderson Act¹¹⁷

¹¹⁷ Provided by Noboru Utatsu

Item		Description	Provi sion
1	Obligation of financial protection	The NRC in the exercise of its licensing and regulatory authority and responsibility shall require the licensee (nuclear operator) in accordance with subsection (b) of this section to cover public liability claims in order to implement public liability.	(a)
2	Financial protection amounts	The licensee shall maintain, as a requirement of operation, the maximum amount of liability insurance available from private sources (nuclear damage liability insurance underwritten by U.S. nuclear insurance pool (ANI: American Nuclear Insurers) with maximum insurance coverage of 375 million dollars) as primary financial protection, and in addition, a prorated share of up to 111.9 million dollars (maximum of 17.5 million dollars per reactor per year) as standard retrospective premium under the mutual assistance arrangement (SFP: second financial protection) (*). The licensee shall submit to the NRC evidence of compliance.	(b)
3	Exclusive financial liability and authority of NRC to conclude indemnity contracts	The nuclear operator shall bear the responsibility of maintaining the measures to cover public liability claims to ensure indemnification from public liability arising from nuclear incidents and the NRC shall have the authority to conclude contracts of indemnity with nuclear operators up to December 31, 2025. The Price-Anderson Act does not include provisions on exclusive liability as nuclear compensation laws of other countries do, but concentrates liability to nuclear operators in effect by adopting an omnibus approach.	(c)
4	-Limitation on public liability of nuclear operators -Measures for damages in excess of the amount of aggregate public liability	1)The aggregate public liability for a single nuclear incident of persons indemnified shall not exceed the amounts obligated under subsection (b) (includes legal costs equivalent to 5% of surcharge) 2) In the event of a nuclear incident involving damages in excess of the amount of aggregate public liability abovementioned, the Congress will thoroughly review compensation plan formulated in accordance with subsection (i) of this section and will determine the necessary actions (including approval of appropriate compensation plans and appropriation of funds) to provide full and prompt compensation to the public for all public liability claims. 3) No provision of paragraph (1) may be construed to preclude the Congress from enacting a revenue measure, (applicable to licensees of the Commission) required to fund any action undertaken pursuant to 2)	(e)(1)(A) (o)(1)(E) (e)(2) (e)(3)
5	Use of services of private insurers	In administering the claims for damages from victimized parties, the facilities and services of private insurance organizations shall be used to the maximum extent practicable.	(g)
6	Compensation plans	-After any nuclear incident involving damages that are likely to exceed the applicable amount of aggregate public liability the NRC or DOE (as appropriate) shall make a survey of the causes and extent of damage and expeditiously submit a report setting forth the results of such survey to the Congress, to the Representatives of the affected districts, to the Senators of the affected States, to the parties involved, and to the courts. -Not later than 90 days after any determination by a court that the public liability from a single nuclear incident may exceed the applicable amount of aggregate public liability, the President shall submit to the Congress, recommendations for additional sources of funds to pay claims exceeding the applicable amount of aggregate public liability and allocation of funds for the payment of claims that may arise as a result of latent injuries that may not be discovered until a later date. -Abovementioned recommendations for additional sources of funds to pay claims exceeding the applicable amount of aggregate public liability shall consider a broad range of possible sources of funds (including possible revenue measures on the sector of the economy).	(i)(1) (i)(2) (i)(2)(B)

Table 7(1) Provisions of the Price-Anderson Act¹¹⁸

¹¹⁸ Provided by Noboru Utatsu

Item		Description		Provision
7	Principle of liability	-Waiver of defenses are applicable only in an extraordinary nuclear occurrence (ENO) -In the event of ENO, the NRC and DOE may incorporate provisions in indemnity agreements, and may also require provisions to be incorporated in insurance policies or contracts, which waive or withdraw any defense (contributory negligence) granted the claimant of indemnities for damages caused by torts under state laws.		(n)(1)
8	Statute of limitation in the event of ENO	-Before amendment in 1988, requirement for waiver of defense was that for the suit to be instituted within three years from the date on which the claimant first knew of his injury or damage, within 20 years of the nuclear accident. -With the deletion of the statute of limitation in the 1988 amendment, the provision has become more stringent for licensees. -State laws apply to non-ENO accidents.		(n)(1)
9	Jurisdiction	■ Federal district court in district where nuclear incident takes place (all nuclear accidents) -Before the 1988 amendment, the United States district court had jurisdiction for ENO and state courts, for other nuclear incidents. -Since the Act of 1988, the United States district court in the district where the nuclear incident takes place shall have original jurisdiction for all nuclear incidents, not limited to ENO.		(n)(2)
10	Plan for distribution of funds and legal costs	■ Plan for distribution of funds Whenever the court determines upon the petition of any indemnitor or other interested person that public liability from a single nuclear incident may exceed the limit of liability under the applicable limit of liability: (1) Total payments made by or for all indemnitors as a result of such nuclear incident shall not exceed 15 per centum of such limit of liability without the prior approval of such court; (2) The payments in excess of 15 per centum of such limit of liability shall be executed in accordance with a plan of distribution which has been approved by the court ■ Legal costs (E) If the sum of public liability claims and legal costs authorized as reasonable and appropriate exceeds the maximum amount of financial protection, any licensee shall be charged such an amount, but in no case more than 5 percent of the maximum amount of standard deferred premium.	7 F.3d 119	
11	Precautionary evacuation costs	-Legally determined a public liability which a nuclear operator shall bear in 1988 amendment -Interpretation in terms of nuclear liability insurance policy is as follows: -In the event the nuclear operator is an electric company licensed by the NRC, it shall be liable for damage due to loss of use during removal or banned use as a result of imminent danger of radioactive contamination which shall be deemed property damage for both liability insurance and SFP -DOE contractors shall be indemnified if definition under Price-Anderson Act is applicable		(q)
12	Punitive damages	■ No court may award punitive damages in any action with respect to a nuclear incident or precautionary evacuation against a DOE contractor -In states that do not ban awarding of punitive damages, courts may award public liability against nuclear operators licensed by the NRC pursuant to state laws In re TMI Metro. Edison Co., 67 F.3d 1119(3d Cir.1995)		(s)

Table 7(2) Provisions of the Price-Anderson Act

Although it has been explicitly stipulated that when damages are in excess of the applicable amount of aggregate public liability, payment could potentially be demanded of other concerned parties as well as operators, who are, needless to say, required to shoulder additional monies, there is no fixed interpretation of what is assumed by a “broad range of possible sources of funds.” This does, however, present an undeniable possibility that operators will be demanded additional payments, therefore implying that the Price-Anderson Act, which has generally been believed to take a limited liability approach, may not actually do so. Nevertheless, it is a well-designed scheme which, unlike Japan’s unlimited liability approach, offers operators and other concerned parties a certain degree of foreseeability by providing the applicable financial protection amount as an initial ceiling.

A close observation of the JCO accident and the TEPCO Fukushima accident reveals that different magnitudes of nuclear disaster should be envisaged and that there should be room for flexibility in addressing occurrences once they happen. This consequently places the predictability of costs on the part of operators and the flexibility of the compensation scheme in a trade-off. However, the attribution of liability should be determined by taking into consideration all factors, including corporate, industrial, economic and political circumstances, based on the fundamental principle of not compelling helpless victims to meekly accept damages. From this perspective, nuclear damage is a matter of political judgment more than it is a legal issue¹¹⁹.

Moreover, the Price-Anderson Act contains explicit provisions on burden-sharing among the President, Congress, the courts, the NRC, etc. and the relevant procedures to be taken when damage compensation amounts are likely to surpass the pooled amount. The President must report in detail to Congress; i) how the national budget

¹¹⁹ Lawmaker Takeo Tanaka and sworn witness Sakae Wagatsuma appropriately engaged in exchange on the very subject in Proceedings of the fourteenth meeting of the Promotion of Science and Technology & Innovation Special Committee of the 38th Session of the Diet, available at: kokkai.ndl.go.jp/SENTAKU/syugiin/038/0068/03804260068014a.html

will be affected by providing indemnification for victims; and ii) on additional financial protection. When damage compensation amounts exceed the limit of liability under the applicable limit of liability, compensation payments to victimized parties shall not exceed 15% of such limits of liability without prior court approval. With explicit roles determined for each concerned party, the compensation plan and distribution plan for the allocation of available funds formulated based on these roles will provide the general public with an idea of the total amount of damages. This can also prevent victims with a stronger voice from being served first. The call for utilizing private insurance company services and functions to the maximum extent possible in dealing with liability claims should serve as good reference for Japan. As of April 30, 2013, TEPCO has allocated 10,000 employees to address liability claims¹²⁰.

Although our experience with the TEPCO Fukushima accident brings us to wonder how much in detail we can actually foresee the damage within 90 days from the occurrence of an accident, the Price-Anderson Act encompasses many provisions to be drawn on. Our Committee held particularly intense discussions on the significance of increasing compensation payments through a mutual assistance arrangement, or the second tier. These discussions will be introduced in Part II, Chapter 3.

An interview with the U.S. Nuclear Energy Institute (NEI)¹²¹ conducted by Prof. Akio Morishima, project leader and Sumiko Takeuchi, Deputy Project Leader in April 2013 revealed that the mutual assistance arrangement has been more effective than what had originally expected of the scheme when it was first introduced in the 1975 amendment (including responding to aforementioned calls for increased public protection and claims that the nuclear industry was over-protected.)

The mutual assistance arrangement implied that once an operator causes an accident, all other operators are at risk. The Institute of

¹²⁰ TEPCO website: Status of compensation, removal of contamination and promotion of revitalization at the Fukushima Revitalization Headquarters (April 30, 2013), available at: www.tepco.co.jp/fukushima_hq/images/k130430_01-j.pdf

¹²¹ NEI www.nei.org

Nuclear Power Operations (INPO)¹²² which was established after the Three Mile Island accident, conducts an extremely strict peer review once every two years, with the participation of the CEOs of companies in rating all reactors. As insurance premiums are determined based on these ratings, operators strive to maintain a high safety level to earn good ratings and this is enhanced by the presence of corporate leaders. Furthermore, cooperation with government authorities is also being sought under a program funded by the DOE by contract and close ties with the NRC. This is useful information for Japan from the perspective of fostering appropriate relationships among operators and regulatory authorities¹²³. As Shimoyama (1976) points out, the amended Price-Anderson Act draws out not only compensation measures applicable in an accident but also a stronger role for the Advisory Committee on Reactor Safeguards (ACRS) and a revised licensing system for nuclear power plants, including an enhanced safety inspection system; and hence, it has valuable implications for Japan in establishing an integrated risk management system for nuclear operations, linking the compensation scheme with safety regulations, nuclear disaster response, business frameworks (regulation) and other policy programs.

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The NEI provides policy proposals on the beneficial use of nuclear technology and energy as well as conducting outreach activities and public hearings. It has gained wide public recognition as an organization communicating fair information by a wide range of experts from companies engaged in nuclear power generation, plant design, engineering, fuel supply, and services, radiology companies, as well as universities, research institutes and labor unions. The Clean Safe Energy Coalition (CASE), a campaign launched by the NEI seven years

¹²² www.rist.or.jp/atomica/data/dat_detail.php?Title_Key=13-01-03-10

¹²³ INPO's role is elaborated in: Suzuki Tatsujiro, Hideaki Shiroyama, Setsuo Takei. Genshiryoku anzen kisei ni okeru beikoku sangyokukai no jishu kisei taisei to min kan kikan no yakuwari to sono unyou keiken: nihon ni totte no shisa (Voluntary nuclear safety regulations in U.S. industry and the role and practice of private organizations: implications for Japan www.jstage.jst.go.jp/article/sociotechnica/3/0/3_0_11/_pdf ; shakai-gijutsu.org/vol3/3_11.pdf

In Japan, the Japan Nuclear Safety Institute bears a similar role: www.genanshin.jp

ago, has developed into an organization with a membership of 3000 people from economic, academic and political circles led by co-chairs Patrick Moore, founder of environmental organization Greenpeace, and Christine Todd Whitman, former governor of New Jersey. NEI has actively provided nuclear information for thirty years to redeem the public confidence and understanding towards nuclear technology once lost in the Three Miles Island accident. In our interview with NEI, we learned the significance of enlightening the public on the unique patterns of expert thinking and the definition of jargon in simple words as well as the positive effect of communicating at least what we have “noticed” on occasions of nuclear trouble in leading the public to appropriate information pathways. We gained a wealth of useful information for both the Government and operators to consider future communication activities in Japan, where public trust for nuclear technology has been impaired as a result of the TEPCO Fukushima accident.

2. German Law¹²⁴

The framework of the German nuclear compensation scheme comprises the direct application of the Paris Convention and the Convention Supplementary to the Paris Convention of 29 July 1960 ("Brussels Supplementary Convention") along with the provisions on nuclear compensation in the German Act on the Peaceful Utilization of Atomic Energy and the Protection against its Hazards ("Atomic Energy Act"). Germany amended the Atomic Energy Act in 2002 to phase out nuclear energy by 2022 but decided that such a phase out would not be viable from the perspective of securing a stable electricity supply

¹²⁴ Reference material on the German nuclear compensation scheme include: Japan Energy Law Institute. Genshiryoku songai baishou housei shuyou kadai kentoukai houkokusho (Report of the Panel on Major Issues Regarding a Legal Framework for Nuclear Compensation) (May 2005) and JAIC, Anata ni shitte moritai genbai seido (Introduction to Japan's Nuclear Compensation System) (2012). Despite reports of amendments made to provisions regarding nuclear compensation in summer 2013, amended provisions could not be obtained in time for this report.

and thus extended the end date of nuclear energy by fourteen years in 2010. However, after the TEPCO Fukushima accident it announced that it would renew its plans for an early phase-out of nuclear power and close all nuclear power plants by 2022, initially suspending operations at the eight plants which started operation previous to 1980, out of the 17 domestically operating plants¹²⁵.

When the Atomic Energy Act was amended in 2002, its original purpose “to promote nuclear research and the development and use of nuclear energy for peaceful purposes” was deleted and replaced with “to phase out the use of nuclear energy for the commercial generation of electricity in controlled manner, and to ensure orderly operation up until the date of termination.” This implies that the German Atomic Energy Act aims solely to protect victimized parties.

The concentration of liability upon operators is pursuant to the provisions of the Paris Convention which call for “strict and exclusive liability”. The operator is granted a right of recourse (Paris Convention Article 6, paragraph f) but not exclusion from liability, and hence the operator primarily bears liability for damage and may claim recourse afterwards.

Furthermore, the German Atomic Energy Act does not grant exclusion from liability in any case whatsoever (Section 25 paragraph 3). However, in the event of nuclear accidents due to armed conflict and other force majeure, the operator’s liability must be limited to 2.5 billion euros, damage exceeding which will be assumed by the government (government compensation).

A total of 2.5 billion euros are maintained as financial security, consisting of 260 million euros in liability insurance and 2.24 billion euros in a funding guarantee by the 4 major electricity companies, which are the parent companies of nuclear operators. The 4 major electricity companies share the funding guarantee according to the thermal output of the reactors in their possession and are required to submit a document to certify the availability of liquidity assets worth twice the funding guarantee shouldered. Hence, although German law

¹²⁵ Watanabe, Tokuko. *Doitsu niokeru datsugenpatsu no tameno rippou sochi* (Legislative measures for nuclear phase-out in Germany), *Gaikoku no rippou* 250 (Foreign laws 250) (Nov. 2011)

provides for unlimited liability on the part of nuclear operators, as does Japanese law (and Swiss law, as undermentioned), it sets a ceiling for the amount of damage to be compensated.

A feature of the German Atomic Energy Act¹²⁶ is that although it had originally adopted a limited liability regime with a ceiling of 500 million marks when it was first enacted, it was changed to an unlimited liability regime in the 1985 amendment. “[W]here legal liabilities to pay compensation for damage resulting from an incident are expected to exceed the amount available to satisfy such liabilities, their apportionment and the procedure to be observed in this context shall be governed by an act or, pending such act, by statutory ordinance.” (Section 35, paragraph (1)) Paragraph (2) of the same section provides, “The statutory ordinance referred to in para. (1) above may only make such provision for the apportionment of the sums available to cover the legal liability to pay compensation for damage as is necessary to avert hardships. Such statutory ordinance shall ensure that satisfaction of the claims of the injured persons as a whole shall not be unduly prejudiced by the satisfaction of individual claims.” Hence the law does not require full compensation to the victims but considers the issue a matter of apportionment. Regarding the provision on damage in excess of the available financial security, some point out that “(in regimes such as Japan, Germany and Switzerland,) liability for damages exceeding the limited financial security amount is, in effect, shifted to the government, but remains ambiguous in legal terms.”¹²⁷ However it should be understood to require the Government to intervene and be involved in the apportionment and procedures.

Indemnity against liability, supported by government funds is stipulated in Section 34, paragraph 1, which provides that “the federation shall indemnify the operator of the nuclear installation or the owner of radioactive material from any liability to pay compensation for damage to the extent such liability is not covered by or cannot be satisfied out of the financial security provided.” This stands for

¹²⁶ Refer to Part III, Chapter 3 for further detail.

¹²⁷ Utatsu, Noboru. *Gendai genshiryokuhou no tenkai to houriron dai 2 han* (The development and legal theory of modern nuclear energy law, second edition) (Nihonhyouronsha, 2012) P295

indemnity against liability by the government, or “government indemnification,” which covers risks which are not covered by insurance such as damage resulting from armed conflict or damage occurring ten years after the accident as well as bankruptcy risks on the part of insurers¹²⁸.

A party to the Paris Convention, Germany directly applies the provisions of the Convention, which provides for limited liability on the part of the operators, but nevertheless adopts unlimited liability in German domestic law. The JAIC says that “although the Paris Convention stipulates limited liability in Article 7, German law seeks to remedy victims through the government’s indemnity obligations, which means that the government is required to indemnify nuclear operators from liability using government funds¹²⁹” but what this exactly points to remains unclear. Utatsu (2012) says that “the relationship between maximum liability (limited liability) under Article 7 of the Paris Convention and unlimited liability can be interpreted as follows: i) The Paris Convention, Article 7 stipulates only the minimum amount of payment and does not provide a maximum amount. A literal interpretation of the provision leads to the understanding that as long as the liability and the financial security amount stipulated in Article 10, paragraph (a), are mutually consistent, any maximum amount would be in line with the provisions of the Convention. ii) Even in an unlimited liability regime, individual liabilities are naturally limited by the total assets of liable parties, and hence, the only difference with a limited liability regime is that there is no general or conceptual ceiling to compensation payments. Therefore, despite incorporating unlimited liability into the German Atomic Energy Act, Germany did not need to make any revisions to the provisions of the Paris Convention, which is interpreted to allow both limited and unlimited liability to be adopted in the domestic nuclear compensation scheme in countries party to the Convention.”¹³⁰

¹²⁸ Japan Energy Law Institute. Genshiryoku songai baishou housei shuyou kadai kentoukai houkokusho (Report of the Panel on Major Issues Regarding a Legal Framework for Nuclear Compensation) (May 2005) P20.

¹²⁹ JAIC, Anata ni shitte moraitai genbai seido (Introduction to Japan’s Nuclear Compensation System) (2012), P142

¹³⁰ Utatsu, Noboru. Genshiryoku mondai no houritsu mondai (Legal issues of nuclear

In the subsection discussing the U.S. Price-Anderson Act, the author pointed out that although the Act has been considered to explicitly stipulate limited liability on the part of the operator, it may very likely not be the case. There is no fixed interpretation of the German nuclear compensation scheme, but based on an observation of the deliberations which took place upon the amendment of the German Atomic Energy Act, we should reach the understanding that an unlimited liability regime and a limited liability regime are not mutually contradictory. Given that even under an unlimited liability regime, it would be impossible to make available unlimited amounts of financial security, government intervention is naturally assumed when the compensation payments required are expected to exceed the financial security amount. It could be concluded that there is no major difference between limited and unlimited liability regimes - under the Price-Anderson Act, as aforementioned, the exceedance of the larger financial protection amount (Tier 2) triggers government intervention, whereas in Germany, which adopts an unlimited liability scheme, when damage is expected to rise to threefold or tenfold of the financial security amount¹³¹, the situation constitutes a national catastrophe, which induces government intervention. It should be noted that the Swiss Nuclear Energy Liability Act, which will be elaborated upon in Part II, includes provisions for major disasters which stipulate that in the event the damage exceeds the amount covered by financial security and government compensation, the federal government shall establish a compensation framework and determine the basic principles regarding compensation to victims by ordinance. The author wishes to note that further studies and verification of overseas nuclear compensation schemes should be conducted with a profound and comprehensive

damage compensation). (Kinyu zaisei jijo kenkyukai, 2012) P55

¹³¹ Details can be found in Part III, Chapter 3. When Germany turned from limited liability to unlimited liability in 1985, Norbert Pelzer, then Professor at Göttingen University, indicated that a situation in which damages exceed triple the amount of 1 billion marks, which was the given maximum amount of government indemnification, should be considered a national catastrophe calling for Government intervention pursuant to Constitutional requirements (thereby changing a civil liability issue into a matter of disaster relief by the Government). Roman Herzog, later President of Germany, pointed out that a situation where damages would exceed tenfold to . twentyfold of 1 billion marks, should be addressed with measures beyond the Atomic Energy Act.

understanding of the country's legal system and legal practice as well as broad insight on the direction of its nuclear policy and relevant international agreements.

3. International agreements¹³²

International agreements (the Paris Convention, the Vienna Convention and the Convention on Supplementary Compensation for Nuclear Damage (CSC)) have been concluded in case nuclear damages extend beyond national borders. As observed in the responses of neighboring countries to TEPCO's release of radiation-contaminated water, nuclear damage entails risks of spreading out beyond borders and triggering international conflict.

International agreements regarding nuclear damage include the Paris Convention (adopted in the OECD/NEA in 1960, entered into force in 1968, and readopted in 2004 as the amended Paris Convention to which Switzerland became a signatory country along with the fifteen countries party to the former Convention, but which is yet to be effective; provides for 700 million euros in financial security) to which European countries are parties and the Vienna Convention (adopted in the IAEA, entered into force in 1977 with the participation of 34 countries from Central and East Europe and Central and South America, amended in 1997 with the additional participation of Argentina, Belarus and Morocco and entered into force as the amended Vienna Convention in 2003) to which mostly Central and East European countries and Central and South American countries are parties. A third framework is the CSC (adopted in the IAEA in 1997, ratified by the U.S. in 2008, and yet to enter into force as of June 2012) to which

¹³² References discussing international agreements on nuclear compensation include: JAIC, *Anata ni shitte moraitai genbai seido* (Introduction to Japan's Nuclear Compensation System) (2012), Japan Energy Law Institute. *Genshiryoku songai baishou ni kakaru houteki wakugumi kenkyuuhann houkokusho* (Report of the Working Group on Legal Frameworks for Nuclear Compensation) (March 2007), *Genshiryoku baisho no arikata ni kansuru kentoukai daiichiji houkokusho* (First Report of the Panel on Nuclear Compensation Schemes) (December 2008) available at: www.mext.go.jp/b_menu/shingi/chousa/kaihatu/007/gaiyou/__icsFiles/afieldfile/2009/06/29/1279826_1_1.pdf, www.jaif.or.jp/ (JAIF website)

Argentina, Morocco, Romania and the U.S are parties and which provides for smaller amounts of financial security compared to the yet-pending amended Vienna Convention. Japan is not a party to any of these conventions.

Japan has not ratified any of these international agreements, presumably for the reasons that it is an island country, that there is little anticipated risk of transboundary damage considering the direction of westerlies, that it has a sufficient nuclear compensation scheme, and that neighboring Asian countries are not parties to any of these international agreements. In our Committee as well, a member commented that “it had been believed that there was little chance that Japan would ever impose nuclear damage upon other countries and that there would be more disadvantages than advantages in ratifying such agreements, and therefore, Japan never ratified any international agreements.” Hence, Japan did not ratify any international agreements based on the general belief that if Japan were to become a party to an international convention on nuclear compensation, Japanese victims would be put at an disadvantage in the event that Japan suffered nuclear damages from an accident occurring in another country, whose courts would have jurisdiction over the issue.

However, considering the interest expressed by neighboring countries regarding transboundary nuclear damage and the fact that even after the TEPCO Fukushima accident, Asian countries have not suspended their energy plans to proactively introduce nuclear power, Japan should lead the development of an international nuclear compensation regime in the Asian region by joining international agreements. Although the former U.S.S.R. did not provide any compensation to neighboring countries after the Chernobyl accident, it is unlikely that Japan would be able to persist in maintaining such a strong stance. Therefore, Japan should seriously consider fostering an international framework to be prepared for both nuclear incidents occurring in Japan and overseas. After the TEPCO Fukushima accident, actions were taken against TEPCO in the U.S.,¹³³ drawing attention to

¹³³ Announcement on Actions against TEPCO in the U.S. on TEPCO website: www.tepco.co.jp/ir/tekiji/pdf/130315-j.pdf

the drawbacks of not having jurisdiction concentrated in the country in which the accident occurred. Furthermore, jurisdiction-related concerns may arouse reluctance among foreign companies to become involved in the decommissioning of the Fukushima Daiichi Nuclear Power Plant. The U.S. has repeatedly asked for Japan's ratification of the CSC upon various occasions, including summit meetings.¹³⁴ In response to such circumstances, Fumio Kishida, Minister of Foreign Affairs, expressed enthusiasm towards joining the CSC at the House of Representative Budget Committee meeting on October 23, 2013.¹³⁵

However, there are many issues that must be studied regarding the coherence between the CSC and Japan's Nuclear Compensation Act which will be discussed in Part II, Chapter 3.

¹³⁴ Japan-U.S. summit meeting on April 30, 2012
www.mofa.go.jp/mofaj/kaidan/s_noda/usa_120429/pmm.html

¹³⁵ Sankei Biz www.sankeibiz.jp/macro/news/131023/mca1310231251012-n1.htm

Part II

The Shortcomings of the Current Nuclear Compensation Law and Perspectives for its Amendment

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Chapter 1 Responding to the TEPCO Fukushima accident

This chapter is a compilation of the decisions made on how to legally address damage compensation and the discussions leading to these decisions which took place after the TEPCO Fukushima accident.

1. Historical context of the establishment of the Nuclear Damage Compensation Facilitation Corporation Act¹³⁶

(1) Confusion after the accident: discussions on exclusion of operators from liability

In the early days after the accident at Tokyo Electric Power Company (TEPCO)'s Fukushima Daiichi Nuclear Power Plant ("TEPCO Fukushima accident"), there was much discussion on whether the exceptional clause of Section 3, paragraph 1 of the Act on Compensation for Nuclear Damages ("Nuclear Compensation Act"), would apply, acknowledging the incident as "an exceptionally grave natural disaster" and thereby excluding TEPCO from liability, as the Great East Japan Earthquake, which had caused the accident had been referred to as a "once-in-a-thousand-years type of major disaster." As

¹³⁶ The following paper was referred to: Oshima, Takeshi. Genshiryoku songai baishou no enkatsu na jisshi ni muketa kokkai giron: genshiryoku sonngai baishou shien kikou houan (Discussions in the Diet for facilitated compensation for nuclear damages: the Nuclear Damage Compensation Facilitation Corporation bill www.sangiin.go.jp/japanese/annai/chousa/rippou_chousa/backnumber/2011pdf/20111108029.pdf)

the supervisory authority of the nuclear compensation system, Yoshiaki Takagi, Minister of Education, Culture, Sports, Science and Technology, explained that “[the situation assumed in the exceptional clause of Section 3, paragraph 1,] was described to be one of a large magnitude, unexpected by humans and beyond all imagination in Diet deliberations which took place upon the submission of the bill”, and that therefore, the situation was being addressed by applying the main clause of Section 3, paragraph 1.¹³⁷ On April 29, Prime Minister Naoto Kan stated, “acknowledging the provision as it is would mean excluding TEPCO from liability. TEPCO has primary liability in terms of damages.”¹³⁸ However, Prime Minister Kan also said at a meeting of the House of Representatives’ Budget Committee on the same day that “although TEPCO is primarily liable for compensating the damages, I believe that in the end, the Government should be responsible for making sure that damages are appropriately compensated,”¹³⁹ implying that there was initial disagreement or confusion within the Cabinet, which finally converged on the conclusion that TEPCO would not be exempted from liability.

The reasons for this conclusion are presumably that in response to the tsunami that struck a wide area of Japan (c.f. table8), all reactors at both TEPCO’s Fukushima Daiichi Nuclear Power Plant and the Tohoku Electric Power Company’s Onagawa Nuclear Power Plant successfully reached cold shutdown, and that the magnitude of the earthquake and

¹³⁷ Meeting of the Committee on Education, Culture, Sports, Science and Technology of the Upper House on April 19, 2011, *available at*:

kokkai.ndl.go.jp/cgi-bin/KENSAKU/swk_dispdoc.cgi?SESSION=12041&SAVED_RID=1&PAGE=0&POS=0&TOTAL=0&SRV_ID=9&DOC_ID=8125&DPAGE=1&DTOTAL=7&DPOS=2&SORT_DIR=1&SORT_TYPE=0&MODE=1&DMY=16094

¹³⁸ Meeting of the Budget Meeting of the House of Representatives on April 29, 2011, *available at*:

kokkai.ndl.go.jp/cgi-bin/KENSAKU/swk_dispdoc.cgi?SESSION=4952&SAVED_RID=1&PAGE=0&POS=0&TOTAL=0&SRV_ID=9&DOC_ID=7526&DPAGE=1&DTOTAL=1&DPOS=1&SORT_DIR=1&SORT_TYPE=0&MODE=1&DMY=6068

¹³⁹ Meeting of the Budget Meeting of the House of Representatives on April 29, 2011, *available at*:

kokkai.ndl.go.jp/cgi-bin/KENSAKU/swk_dispdoc.cgi?SESSION=4952&SAVED_RID=1&PAGE=0&POS=0&TOTAL=0&SRV_ID=9&DOC_ID=7526&DPAGE=1&DTOTAL=1&DPOS=1&SORT_DIR=1&SORT_TYPE=0&MODE=1&DMY=6068

ensuing tsunami (c.f. table9) was not “exceptionally grave” compared to others historically experienced by humans. However, given the Government’s failure to provide an explicit explanation of the grounds for such judgment and the diversified statements made by different ministers, including the Prime Minister, as aforementioned, many questions have been raised regarding the process and even the Government’s judgment that the clause on exclusion from liability would not be applied¹⁴⁰. It could also be indicated that the government should have set clear requirements before the accident occurred.

The final judgment of whether or not TEPCO should be excluded from liability should be made by judicial ruling,¹⁴¹ and now that a scheme that is premised on TEPCO’s liability has been established after two and a half years since the accident, it is difficult to find any significance in discussing whether or not TEPCO should have been excluded from liability. However, it should be noted that the current Nuclear Compensation Act, with a provision on exclusion from liability in the absence of clear identification of the requirements for its application, embraces the shortcoming that operators and the Government must allocate time and energy to related discussions when they are required to be fully committed to the recovery of damages

¹⁴⁰ For example, Morishima, Akio. Genshiryoku jiko no higaisha kyusai (1) – songaibaisho to hoshō (Victim relief in nuclear accidents (1): indemnification and compensation for damages), *Toki no Hourei*, Vol. 1882 states that such interpretations, ignorant of the wording of the exceptional clause in Section 3, paragraph 1 of the Nuclear Compensation Act and are contradictory to the spirit of the law, and that the application of exclusion from liability should be considered. However, other opinions state that exclusion of liability is inapplicable as in Hitomi, Takeshi. Fukushima daiichi genshiryoku hatsudensho jiko no songai baishō (Compensation for damages from the accident at Fukushima Daiichi Nuclear Power Plant). *Hougaku seminar* (December 2011) and Otsuka, Tadashi. Fukushima daiichi genshiryoku hatsudensho jiko ni yoru songai baishō (Compensation for damages from the accident at Fukushima Daiichi Nuclear Power Plant). *Houritsu jiho* Vol.83 No.11.

¹⁴¹ Tokyo District Court, July 19, 2012 (Compensation claims by TEPCO shareholders against the Government): The media reported that the court ruled that the Government decision not to acknowledge TEPCO’s exclusion from liability was lawful, but it should be noted that the ruling only read that “the action of the Government officer who [...] judged that the Great East Japan Earthquake and the ensuing tsunami are not relevant to such an event (as provided for in the Nuclear Compensation Act, Section 3, paragraph 1) and formulated guidelines on the scope of nuclear damage on the premise that the Tokyo Electric Power Company was liable for damages caused by the accident at the Tokyo Electric Power Company’s Fukushima Daiichi Nuclear Power Plant cannot be referred to as a violation of Article 1, paragraph 1 of the State Redress Act” (emphasis added by author), and did not make a judgment regarding the relevance of the premise.

induced by an accident or natural disaster.¹⁴²

Also, in light of the facts that nuclear business had been highly under Government supervision and that instructions regarding accident response (including those for venting and water injection), evacuation instructions and shipping restrictions had been issued as Government measures, it is not difficult to imagine that the application of the State Redress Act was considered. In terms of applying the State Redress Act, there has been debate over whether the principle of exclusive liability under the Nuclear Compensation Act would also exclude the possibility of compensation by the Government. This will be elaborated in Part II, Chapter 3¹⁴³.

Observation point	Great East Japan Earthquake (2011)	Meiji Sanriku Earthquake (1896)
Ryori, Ofunato City	11.0-23.6m (runup height)	38.2m (runup height, Usami, 2003)
Near Port Kuji	13.4m (runup height)	21.0m (runup height, Iwate Pref. potential tsunami flooding map)
Near Port Kamaishi	6.1-9.0m (runup height)	8.0m (runup height, Iwate Pref. potential tsunami flooding map)
Near Port Hachinohe	6.0-8.4m (runup height)	3m (Watanabe, 1998)

Source:

data for Great East Japan Earthquake obtained from Port and Airport Research Institute

compiled from Takahashi, Yasufumi. Kaisetsu genshiryoku songai baishou shien kikou hou (Guide to the Nuclear Damage Compensation Facilitation Act) (Shojihomu, 2012)

Table 8 Comparison of the height of tsunami waves in the Great East Japan Earthquake and Sanriku Earthquake

¹⁴² Tanabe and Maruyama (2012) point out that the structure of the Act makes it difficult to exclude operators from liability.

¹⁴³ References discussing the relationship between the State Redress Act and the Nuclear Compensation Act include: Hayakawa, Kazuhiro. Genshiryoku songai to kokka baishou (Nuclear damage and Government compensation). *Omiya Law Review* No.9; Takahashi, Yasufumi. Kaisetsu genshiryoku songai baishou shien kikou hou (Guide to the Nuclear Damage Compensation Facilitation Act). (Shojihomu, 2012); Takahashi, Shigeru and Tadashi Otsuka. Shinsai, genpatsu jiko to kankyohou (Earthquake-induced disaster, nuclear accident and environmental law) (Minjihokenkyukai, 2013)

Major earthquakes in Japan (Source: The Headquarters for Earthquake Research Promotion)
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Major earthquakes of the world (Source: USGS)
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Earthquake (beyond Edo era)	Magnitude (M)	Notes
Great East Japan Earthquake (2011)	9.0	Intensity at Fukushima Daiichi NPP was 6 upper (Intensity of 6 upper has been observed in 7 locations in Japan from 2001-2010)
Hoei Earthquake (1707)	8.6	
Ansei Tokai Earthquake (1854)	8.4	
Ansei Nankai Earthquake (1854)	8.4	
Meiji Sanriku Earthquake (1896)	8.2-8.5	
Great Kanto Earthquake (1923)	7.9	

Earthquake (20th century-)	Magnitude (M)
Chile Earthquake (1960)	9.5
Great Alaska Earthquake (1964)	9.2
Sumatra Earthquake (2004)	9.1
	9.0
Kamchatka Earthquake (1954)	9.0

Major tsunamis in Japan (Source: The Headquarters for Earthquake Research Promotion)

Major tsunamis in Japan (Source NOAA database)

Earthquake (beyond Edo era)	Height (m)
Meiji Sanriku Earthquake (1896)	38.2 (Ryourai, Sanriku Town)
Yaeyama Tsunami (1771)	Approx.. 30 (Ishigaki Island)
Meiji Sanriku Earthquake (1896)	29.0 (Tanohata)
Hokkaido Nansei-oki Earthquake (1993)	29.0 (Okushiri)
Great East Japan Earthquake (2011)	23.6 (Ofunato)

Earthquake	Height (m)
Litsuya Bay (1954)	524.26 (Alaska)
Spirit Lake (1980)	250 (Washington)
Spirit Lake (1980)	225 (Washington)
Great East Japan Earthquake (2011)	23.6 (Ofunato)

Table 9 Historical comparison of earthquakes and tsunamis in Japan and the world

(2) Beginning of provisional payments by TEPCO

Against this backdrop, on April 11, 2011, the Dispute Reconciliation Committee for Nuclear Damage Compensation (“Dispute Reconciliation Committee”; Chairman: Yoshihisa Nomi, professor of Gakushuin University) was established as a body to assume administrative tasks regarding the preparation of general instructions to help concerned parties (victims and TEPCO) reach voluntary settlement of disputes. From the end of April, TEPCO began making provisional compensation payments: i) 1 million yen per household and 750 thousand yen per single-person household to residents of evacuations areas and in-house evacuation areas (from April 26); ii) agriculture, forestry and fisheries businesses (from May 31); and iii) small- and medium-sized businesses (from June 10).

(3) Historical context of the enactment of the Nuclear Damage Compensation Facilitation Corporation Act

Compensation payments for damages induced by the TEPCO Fukushima accident were initiated with TEPCO, as operator, “primarily bearing” liability. However, by June 15, 2011 the number of evacuees (including those evacuating according to evacuation instructions or recommendations and voluntary evacuees) was estimated to be as much as approximately 113 thousand people¹⁴⁴, calling for compensation payment amounts in excess of the financial security amount. TEPCO requested the Government to provide aid pursuant to Section 16 of the Nuclear Compensation Act. The Government required TEPCO to confirm six conditions, including not setting a ceiling on total compensation payments and asking for the support of all stakeholders, especially financial institutions, whose potential aid TEPCO would report to the Government. TEPCO agreed to these conditions and the Government support scheme was adopted in a meeting held among relevant ministers¹⁴⁵. The ministerial meeting decided that “the Government

¹⁴⁴ At a meeting of the Committee on Public Management of the House of Representatives held on June 16, 2011, Vice Minister Tadahiro Matsushita explained that in the area covering evacuation areas, deliberate evacuation areas and evacuation-prepared areas in case of emergency, populated by 147 thousand people, 113 thousand people were estimated to have evacuated outside of the area.

¹⁴⁵ The reason that it was not adopted as a Cabinet decision, as provided in the eleventh

must ensure: firstly, to take every possible measure for prompt and appropriate compensation for damage; secondly, to stabilize the condition of TEPCO's Fukushima Daiichi Nuclear Power Plant and to avoid any adverse impacts on related operators, etc. dealing with the accident; and thirdly, to supply stable electricity, which is indispensable for national livelihood. To ensure these three elements, the Government shall acknowledge its social responsibility of promoting nuclear policy with the cooperation of nuclear operators and at the same time, within the framework of the Nuclear Compensation Act, provide aid to the Tokyo Electric Power Company on the basis of minimizing public burden." It also explicitly said that "no limits shall be set upon the aid, which shall be provided as many times as needed, so that all amounts required for damage compensation and capital investment can be aided and the nuclear operator (TEPCO) shall not become insolvent." On June 14, this was adopted as a Cabinet decision on the "Framework of government support to the Tokyo Electric Power Company (TEPCO) to compensate for nuclear damage caused by the accident at Fukushima nuclear power plant," based on which the Nuclear Damage Compensation Facilitation Corporation bill was submitted to the 177th Session of the Diet. The Nuclear Damage Compensation Facilitation Corporation Act ("Facilitation Corporation Act") was promulgated and enforced on August 10, 2011.

<Events leading to decision of the support scheme>

- | | |
|--------|--|
| May 10 | Request for aid from TEPCO to the Government (Minister Kaieda of Economy, Trade and Industry) ¹⁴⁶ |
| May 10 | Notification of conditions to be confirmed by TEPCO from Minister Kaieda ¹⁴⁷ |
| May 11 | Notification of acceptance by TEPCO |
| May 13 | Approval of the support scheme in a ministerial |

meeting of the House of Representative's Committee on Economy and Industry of the 177th Session of the Diet (May 25, 2011) by Minister Banri Kaieda in response to a question set forth by committee member Takashi Tanihata, was that since a Cabinet decision would immediately lead to the submission of a bill to the Diet, approval in a ministerial meeting was taken as an initial step in order to allow time for discussion in the Diet.

¹⁴⁶ www.meti.go.jp/earthquake/nuclear/pdf/songaibaisho_110511.pdf

¹⁴⁷ www.meti.go.jp/earthquake/nuclear/pdf/songaibaisho_110511.pdf

meeting¹⁴⁸

- June 14 Adoption of the Cabinet decision on the support scheme
 and the Nuclear Damage Compensation Facilitation
 Corporation bill¹⁴⁹
- August 10 Promulgation and enforcement of the Nuclear Damage
 Compensation Facilitation Corporation Act

(4) Deliberation in the Diet on the Nuclear Damage Compensation Facilitation Corporation Act

Discussions in the 177th Session of the Diet were focused on the following points:

i) Responsibility of the State

The original draft had not referred to the Government's liability, but in view of opinions from the Liberal Democratic Party (LDP) that the responsibility of the Government should be made explicit, a provision was inserted on "social responsibility"¹⁵⁰ for promoting nuclear policy: Article 2 (Responsibility of the State) "In view of the social responsibility that comes along with its having promoted a nuclear energy policy, the State shall take all necessary measures to enable the Nuclear Damage Compensation Facilitation Corporation to achieve the purpose described in the preceding Article."¹⁵¹

¹⁴⁸ "Framework of government support to the Tokyo Electric Power Company (TEPCO) to compensate for nuclear damage caused by the accident at Fukushima nuclear power plant" (decision of ministerial meeting among relevant ministers of the Team in Charge of Responding to the Economic Impact caused by the Nuclear Power Station Incident)

¹⁴⁹ www.meti.go.jp/earthquake/nuclear/taiou_honbu/pdf/songaibaisho_110614_05.pdf

¹⁵⁰ At the 29th meeting of the Upper House plenary session of the 177th Diet, Minister of State, Yukio Edano stated, "the Government also acknowledges that, in view of having promoted nuclear energy policy, we must implement sufficient measures for prompt and appropriate redress of victims. Such needs have been explicitly stated as social responsibility in Article 2 of the bill."

¹⁵¹ Takahashi, Yasufumi. Kaisetsu genshiryoku songai baishou shien kikou hou (Guide to the Nuclear Damage Compensation Facilitation Act) states that for the Government to burden (pay) damage compensation, some form of legal responsibility or social policy reasons would be required and categorizes and analyzes, by legal or social aspects or necessity, the "responsibility" referred to in different contentions that the Government's responsibility should be made explicit.

ii) Consideration of the legal liquidation of TEPCO

The legal liquidation of TEPCO was naturally also debated upon providing Government aid. Before discussion of the legal liquidation of electric power companies, the problems of legally liquidating TEPCO under current laws are summarized below, based on quotes by then Prime Minister Naoto Kan:¹⁵²

- a) “Reconstruction” under the Corporate Rehabilitation Law was determined impossible given uncertainties regarding not only the compensation payment amounts but also decommissioning costs.

(According to the Comprehensive Special Business Plan, jointly formulated by TEPCO and the Nuclear Damage Liability Facilitation Fund (“Facilitation Fund”) and whose changes were approved on May 9, 2012, the compensation payment amounts required are 2 trillion 546 billion 271 million yen, estimated decommission costs are 900.2 billion yen, based on reasonable estimates conducted by TEPCO, but 1 trillion 151 billion yen in estimates based on the U.S Three Miles Island accident, and decommissioning measures will take 30 years.)

- b) Current law prioritizes the protection of corporate bondholders to the protection of victims

(The Electricity Business Act Article 37 provides that “bondholders for a General Electricity Utility [...] shall have the right to receive payment of their claims from the corporation's property in preference to other creditors” (paragraph 1) and that “its rank [...] shall be the second to general statutory lien prescribed in the Civil Code [...].” Hence, the protection of bondholders are prioritized to that of victims and may impede the purpose of victim protection provided for in the Nuclear Compensation Act. (It should be noted that the formulation of a law should essentially involve close investigation and adequate discussion of any potential conflict with existing laws. It naturally should have been predicted that the statutory lien of electricity bonds secured by general mortgage under the Electricity Business Act was unlikely to be consistent with the

¹⁵² Proceedings of the Plenary Session of 177th Session of the Diet Vol.31, p4 and 14 (July 8, 2011)

unlimited liability approach stipulated in the Nuclear Compensation Act. Therefore, further studies need to be conducted on what discussions took place upon legislation.)

2. Overview of the Nuclear Damage Compensation Facilitation Corporation Act¹⁵³

In view of the social responsibility that accompanies the Government's promotion of a nuclear energy policy, the purpose of the Facilitation Corporation Act is to ensure the following three elements by implementing sufficient measures for the provision of support for damage compensation, on the basis of "aiming to minimize the burden to be placed on the public":

- (i) take every possible measure for the prompt and appropriate compensation for nuclear damage;
- (ii) stabilize the condition of TEPCO's Fukushima Daiichi Nuclear Power Plant and avoid any adverse impacts on related operators, etc. dealing with the accident;
- (iii) stably supply electricity

With the establishment of the Facilitation Corporation Act, nuclear operators (total of 12 companies¹⁵⁴) and the Government each subscribed 7 billion yen to establish the Nuclear Damage Compensation Facilitation Fund ("Facilitation Fund").

¹⁵³ Refer to Cabinet Secretariat. Overview of the Nuclear Damage Compensation Facilitation Corporation Act, *available at*: www.cas.go.jp/jp/seisaku/keieizaimutyousa/dai1/shiryou4-4houan.pdf

¹⁵⁴ "Nuclear Operators" under the Facilitation Corporation Act refers to persons who may potentially cause nuclear accidents whose damages will exceed the financial security amount stipulated in the Nuclear Compensation Act, Section 7, paragraph 1 (Article 38, paragraph 1). The twelve operators which subscribed to the Facilitation Fund upon its establishment were the nine electric companies, the Japan Atomic Power Company, Electric Power Development Co., Ltd., and Japan Nuclear Fuel Limited.

Private Funds	(million yen)
Hokkaido Electric Power Company	254
Tohoku Electric Power Company	418
Tokyo Electric Power Company	2,379
Chubu Electric Power Company	622
Hokuriku Electric Power Company	236
Kansai Electric Power Company	1,229
Chugoku Electric Power Company	331
Shikoku Electric Power Company	254
Kyushu Electric Power Company	660
The Japan Atomic Power Company	332
Electric Power Development Co., Ltd.	168
Japan Nuclear Fuel Limited	117
Total	7,000

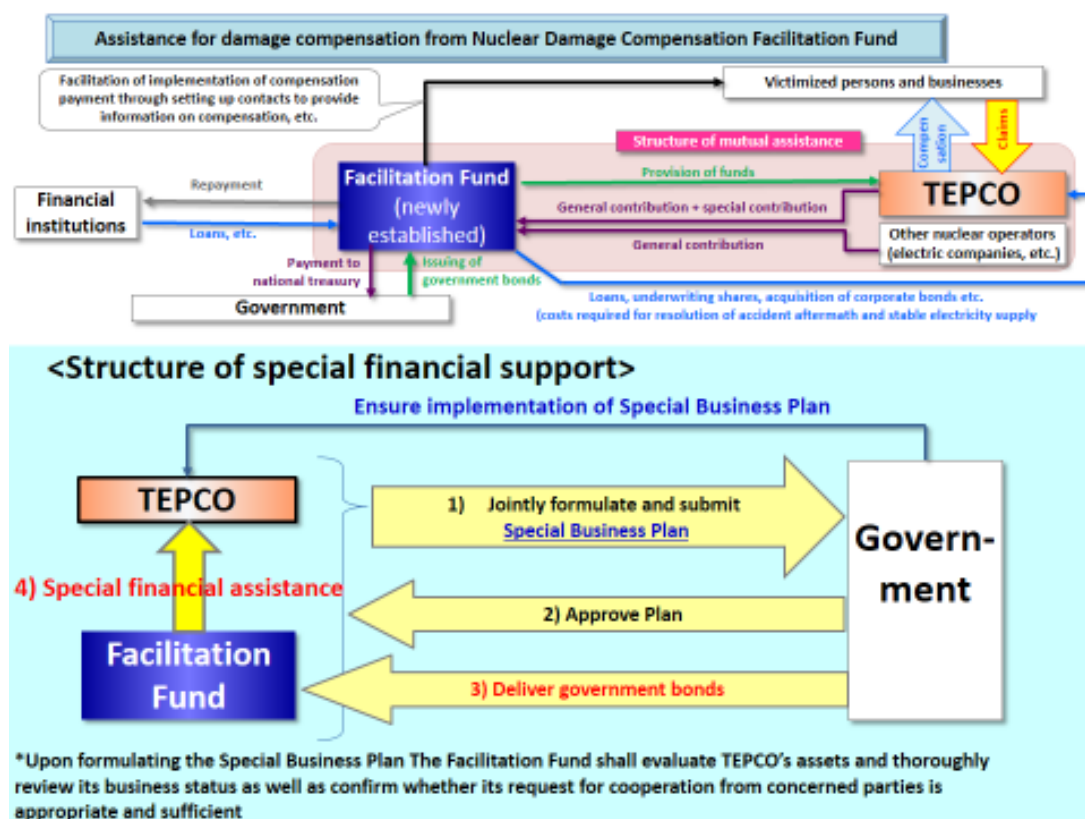
Source: compiled by author based on news sources

**Table 10 Private Sector Contributions to Nuclear Damage
Compensation Facilitation Fund**

When the required amount of compensation pursuant to the provisions of Article 3 of the Nuclear Compensation Act is expected to exceed the amount of financial security, the nuclear operator may apply to the Facilitation Fund for financial assistance (Facilitation Corporation Act, Article 41). Upon receipt of an application for financial assistance, the Facilitation Fund must decide whether to provide financial assistance as well as decide the substance and the amount of such financial assistance (Facilitation Corporation Act, Article 42, paragraph 1). If it is necessary for the Facilitation Fund to be delivered government bonds, it shall, working jointly with the nuclear operator prepare a "Special Business Plan", which shall receive the approval of the competent minister (Facilitation Corporation Act, Article 45).

The Facilitation Fund shall pay into the Treasury the financial assistance amount provided by the Government (Facilitation Corporation Act, Article 59, paragraph 4) and in principle is to be repaid by TEPCO through the Facilitation Fund at a future date. Hence, this financial assistance is more in the character of providing a bridge loan

than bailing out TEPCO using public funds.



[www/meti.go.jp/earthquake/nuclear/taiou_honbu/pdf/songaibaisho.111003_02.pdf](http://www.meti.go.jp/earthquake/nuclear/taiou_honbu/pdf/songaibaisho.111003_02.pdf)

(last accessed on October 17, 2013)

Figure 7 Assistance for damage compensation from the Nuclear Damage Compensation Facilitation Fund

Although the Facilitation Fund provides assistance for TEPCO in its compensation payments for damages from the Fukushima accident, it is considered to be an organization for “mutual assistance” for supporting nuclear operators compensating for nuclear damage incurred by nuclear accidents in the past and future. Therefore, it is also regarded an ex-post replication of the mutual assistance scheme under the U.S. Price-Anderson Nuclear Industries Indemnity Act (“Price-Anderson Act”). The Government will provide financial assistance to the newly established Facilitation Fund through the delivery of government compensation bonds, but the Facilitation Fund, which is eventually to be maintained and operated based on

contributions from nuclear operators, will repay the funds received from the Government as government bonds; and therefore, the scheme ultimately does not create Government (public) burden. The Facilitation Fund is to be maintained to address future nuclear disasters¹⁵⁵, and the timing of its dissolution is yet to be determined.

Also, the Act on Emergency Measures Related to Damage Caused by the 2011 Nuclear Accident (promulgated on August 5, 2011) provided for the provision of prompt relief to the parties suffering from damage through provisional payments to victimized parties made by the State and support for local public entities that have established emergency funds for nuclear damage.

3. Significance and challenges

The advantages and disadvantages of current responses based on the Nuclear Compensation Act and the Facilitation Corporation Act established under it are provided below:

Advantage 1: Avoidance of panic among victimized parties

An opinion brought forth at our Committee meetings, was that the reason that there was no panic over compensation payments after the accident largely owes to the unlimited liability of operators stipulated in the Nuclear Compensation Act.

Advantage 2: Securing business funds for TEPCO to proceed with decommissioning reactors and stably supplying electricity

With the embodiment of “Government aid,” stipulated in Section 16 of the Nuclear Compensation Act, in the Facilitation Corporation Act, the debates over pursuing shareholders’ responsibility, debt waivers, and legal liquidation which were continued in the confusion after the

¹⁵⁵ Proceedings of the 10th meeting of the House of Representative’s Committee on Economy and Industry of the 177th Session of the Diet (July 14, 2013): Banri Kaieda, Minister of State, “It has been compiled so that we may be able to address future accident as well [...] so, even after the damages related to the accident caused by TEPCO have been completely compensated, the risk of nuclear accidents will remain, and therefore it will be maintained.”

accident gradually settled. TEPCO stocks remained listed and financial institutions continued to provide financing, and the interest payments and redemption of TEPCO'S corporate bonds were conducted without fail. With the establishment of the framework under the Facilitation Corporation Act, TEPCO was provided funds to be paid to its suppliers of material required for electricity business operations, and hence, TEPCO gained a financial basis for continuing its electricity business operations as well as for compensating for damages.¹⁵⁶

Advantage 3: Positive effects on financing for other electric power companies

The TEPCO Fukushima accident greatly affected the financing available for other electric power companies. In fiscal year 2010, the ten electric power companies collectively issued 1 trillion 5 billion yen in corporate bonds, whereas in fiscal year 2011, the only corporate bonds issued were 10 billion yen worth of bonds issued in June by Okinawa Electric Power Company, which does not possess a nuclear reactor, and 60 billion yen worth, by Tohoku Electric Power Company in March. Hence, the ten electric power companies had to rely mainly on loans from financial institutions. However, when the Facilitation Corporation Act scheme began to function, it became clear that the Government would provide aid for nuclear operators, and the electricity bond market gradually resumed its stability, with Kansai Electric Power Company and Chubu Electric Power Company issuing new corporate bonds 16 months after the accident.

However, the current scheme encompasses many disadvantages as well:

Disadvantage 1: TEPCO's deterioration as a corporate body, especially weakened problem-solving capacity

Under the current scheme, the Government delivers government

¹⁵⁶ Hironari Nozaki, Managing Director of Citigroup Global Markets Japan commented in "Foreign Investors Vigilant about Unreasonable Political Intervention" (Kinyu Zaisei Jijo, May 30, 2011) that the framework defined by Facilitation Corporation Act was an extremely well-designed scheme which "made full use of the time frame, while allowing TEPCO to manage the compensation payments on its own."

bonds to the Facilitation Fund and financial assistance is provided to TEPCO via the Facilitation Fund, on the premise that the funds provided by the Facilitation Fund are not debts.¹⁵⁷ Pursuant to Article 52 of the Facilitation Corporation Act, TEPCO (the nuclear operator receiving Special Financial Assistance) is not allowed to include the Special Contribution Amounts paid in addition to the General Contribution Amounts in the electricity rates and must be paid out from business profits (shareholder returns). As of October 23, 2013, 3 trillion 96.4 billion yen have been provided to TEPCO. According to estimates by the Board of Audit, if 5 trillion yen were to be provided, it could take as long as 31 years to recover all payments.¹⁵⁸ With payments expected to continue to increase, is it really viable for a company to pursue its business of providing stable supply of electricity while incurring ultra-long debts? As is often reported in the media,¹⁵⁹ there is much concern of an outflow of competent human resources and a decline in employee motivation. More than threefold of the average year, or 465 people, left their job at TEPCO in 2011, with voluntary resignations surging to 710 in 2012. The high problem-solving capacity, or site-competence, of Japanese electric power companies has been a major factor enabling the supply of high-quality electricity in Japan, and its weakening will pose great challenges.

Disadvantage 2: Incompatibility with the deregulation of the electric power industry

As aforementioned in Disadvantage 1, TEPCO is to repay the funds provided by the Facilitation Fund using the profits generated from its

¹⁵⁷ Morimoto, Noriyuki. Fukushima genshiryoku jiko no sekinin (The responsibilities related to the Fukushima nuclear accident) (The Japan Electric Association, Newspaper Division) p68 and Saito, Makoto. Genpatsu kiki no keizaigaku (The economics of risks related to nuclear power plants) (Nihon Hyoronsha) p184- state that acknowledging the funds provided as debt would put TEPCO in a state of insolvency, and therefore, they are considered Special Contribution Amounts “to be repaid upon success” (op. cit. Morimoto). -

¹⁵⁸ Board of Audit, of Japan “Report on the Audit on the Implementation Status of Government Support for Compensations for Nuclear Damages Related to the Tokyo Electric Power Company”

(Summary) www.jbaudit.go.jp/pr/kensa/result/25/pdf/251016_youshi_1.pdf

¹⁵⁹ Jiji Press April 15, 2013 www.jiji.com/jc/zc?k=2013041500825

TEPCO decided to pay lump-sum payments of 100,000 yen to managerial personnel in July 2013 in order to stop the outflow of human resources.

www.sankeibiz.jp/business/news/130720/bsd1307200500006-n1.htm

electric power business. However, although securing such profits may be promised under the conventional framework featuring fully distributed cost (FDC) pricing and regional monopoly, when these schemes are abolished under a deregulated electricity system, such estimates will be invalid. In the Diet, as well, comments have been made that the framework identified by the Facilitation Corporation Act appear to be premised on the current electric power system, as provided below (emphasis added by author):

Proceedings of the 13th meeting of the House of Representative's Committee on Economy and Industry of the 177th Session of the Diet (June 1, 2011)¹⁶⁰, question by Committee member Hidekatsu Yoshii:

According to the May 13 decision made at the ministerial meeting, the Facilitation Fund would first be established and the Facilitation Fund would assist TEPCO in making its compensation payments by providing funds and capital injection as many times as needed, without setting a ceiling. If compensation payments increase, then government compensation bonds and government guarantee for bank liabilities would also increase, meaning that public burden will go on expanding.

If TEPCO fails to make repayments to the Facilitation Fund, the funds will be covered by taxpayers' money. TEPCO is substantively an insolvent and bankrupt company. Therefore, payments from TEPCO to the Facilitation Fund are to be made using TEPCO's business profits. Under the current scheme of FDC pricing and regional monopoly, would not business profits to repay compensation payments, in the end, be generated by raising electricity tariffs? Therefore, this framework is not a compensation scheme but rather a relief scheme for TEPCO, premised on the continuation of TEPCO, is it not?. [...] Therefore, a scheme that aims to maintain regional monopoly and FDC pricing is unlikely to be spared being referred to as a relief scheme for TEPCO, so we should devise a completely different scheme. With this, I would like to end my question.

¹⁶⁰ www.shugiin.go.jp/internet/itdb_kaigiroku.nsf/html/kaigiroku/009817720110601013.htm

Disadvantage 3: Questions whether or not public burden has been minimized

The framework provided for in the Facilitation Corporation Act aimed to minimize public burden, comprising electricity tariffs and tax burdens, and this is illustrated in the collateral resolution of the Facilitation Corporation Act which provides for “aiming to minimize the burden to be placed on the public.”¹⁶¹ However, no ceiling has been set for the provision of funds from the Facilitation Fund to TEPCO. Premised on eventual repayment to the National Treasury, the scheme embraces difficulties in promoting efficiency from the viewpoint of minimizing burden. For example, with the enactment of the Act on Special Measures concerning the Handling of Environment Pollution by Radioactive Materials Discharged by the Nuclear Power Station Accident Associated with the Tohoku District Off the Pacific Ocean Earthquake that Occurred on March 11, 2011 (“Act on Special Measures on Handling Pollution by Radioactive Materials”), a lawmaker-initiated legislation, TEPCO suddenly had to assume all decontamination costs, which were originally supposed to be assumed by the Government.¹⁶² “Nuclear damage” under Section 2, paragraph 2

¹⁶¹ Proceedings of the 16th meeting of the House of Representatives Special Committee on Reconstruction from the Great East Japan Earthquake of the 177th Session of the Diet (July 26, 2011), *available at*: www.shugiin.go.jp/internet/itdb_kaigiroku.nsf/html/kaigiroku/024217720110726016.htm
Proceedings of the 18th meeting of the House of Councilors Special Committee on Reconstruction from the Great East Japan Earthquake of the 177th Session of the Diet (August 2, 2011), *available at*: www.shugiin.go.jp/internet/itdb_kaigiroku.nsf/html/kaigiroku/024217720110802018.htm

¹⁶² Developments leading to the legislation are listed below:
August 1: Inquiries by the Ministry of the Environment to other ministries pursuant to a request from the DPJ Project Team for Fukushima Nuclear Accident Assessment and Solutions (“PT”) (Chairman: Satoshi Arai)
August 3: Vice Chairman Issei Tajima explains “draft outline” at PT meeting
*The burdening of costs “shall not preclude the right to claim compensation for damages or right to indemnification against the operator (TEPCO).”
August 11: Vice Chairman Issei Tajima explains the “bill” at PT meeting and bill is approved. Revisions made at Legislative Bureau House of Representatives.
*On Chairman Satoshi Arai’s website, it was noted, “Conclusion is yet to be reached regarding financial measures, with the Ministry Internal Affairs and Communications demanding that the Government assume all compensation payments based on requests from local governments, and the Ministry of Finance is demanding that it be able to seek indemnification from TEPCO due to financial difficulties”
August 12: Three-party conference among the Democratic Party of Japan (DPJ), Liberal Democratic Party (LDB) the New Komeito.
*Revision of provision to “measures taken in relation to damages for which the relevant nuclear operator (TEPCO) is liable shall be implemented at the expense of the relevant

of the Nuclear Compensation Act is supposed to refer to damage with a relationship of adequate causation to the effects of the radiation from nuclear fuel or of the toxic nature of such materials, and therefore the operator who receives claims should be granted the opportunity to disprove the adequate causation between the damage and its said cause. However, such opportunities are limited to individual settlements out of court and alternate dispute resolution (ADR). The costs shouldered by the operator will eventually be shouldered by customers through electricity tariffs, or by the general public through taxes. Electricity tariffs are, in effect, paid by the general public; and hence, as the scheme under the Facilitation Corporation Act merely excludes tax burden, it is dubious whether that really serves to “minimize public burden.” Also, as the scheme is premised on repayment from the operator’s future profits, there is a discrepancy between the responsibility for implementation and cost distribution, therefore undermining incentives for cost-effectiveness, improved efficiency and the acceleration of decontamination activities and increasing costs, while also delaying procedures.¹⁶³ It is also true that victimized people in Fukushima have voiced that “if they have that much to spend, we would like to see that money spent on reconstructing our livelihoods.”

At the time of the enactment of the Facilitation Corporation Act, then Minister of Economy, Trade and Industry, Banri Kaieda stated, concerning the minimization of public burden, that the general contribution amounts collected from electric power operators other than TEPCO, which caused the accident, could be assessed by including them in the electricity tariff and that the assessment would serve to minimize public burden,¹⁶⁴ but as aforementioned in the

nuclear operator.”

August 18: Deliberation and approval in the “Lawmaker-initiated legislation coordination team”

August 23-36: Deliberation and adoption in the Diet. (with little time for deliberation in the House of Representatives Committee on the Environment)

¹⁶³ NHK Online News Watch 9, July 23, 2013

The Asahi Shimbun Opinion column decontamination officer at Date City, Fukushima Prefecture, “Concerned about going too far. Look at reality” (March 12, 2013)

¹⁶⁴ Proceedings of the 16th meeting of the House of Representatives Special Committee on Reconstruction from the Great East Japan Earthquake of the 177th Session of the Diet (July 26, 2011), *available at*: www.shugiin.go.jp/index.nsf/html/index/kaigiroku.htm

description of Disadvantage 2, this view is premised on the continuity of assessments based on the FDC pricing method. Furthermore, general contributions constitute only a small portion of the funding sources¹⁶⁵ for financial assistance, while “government aid”¹⁶⁶ based on the delivery of government compensation bonds is its main contributor. Therefore, it would be extremely difficult to argue that public burden is minimized on the grounds that general contributions are assessed as a component of the electricity tariff.

Junko Nakanishi, fellow at the National Institute of Advanced Science and Technology¹⁶⁷ made the following comments in an interview on the radio¹⁶⁸ :

-It is “abnormal” that the decontamination of a major “national project” such as this has been taken forward with not even an overall estimate of the total costs required revealed by the Government. I “have a presentiment” that money will continue to be injected on and on, or otherwise the project will be abandoned before it is completed

- An image of the entire costs should first be presented, followed by an idea of what will be accomplished (the extent to which decontamination is possible as well as what cannot be done); otherwise, victims are not capable of reestablishing even their livelihoods.

-Without a full image of the costs, it is impossible to even present options for rehabilitation.

-Giving the wrong impression that decontamination will realize levels of 1mSv/yr may risk the increased injection of resources into decontamination activities with low cost-efficiency.

-An option of local regeneration is concentrating resources for decontamination in areas with low radiation and improving infrastructure in these areas in order to establish a pioneering compact city.

-Local governments should be granted not only monies for contamination but also funds for livelihood support, including funds for siting industries.

¹⁶⁵ The source of funds provided to TEPCO through the Facilitation Fund are: i) general contributions; 2) special contributions; and 3) government aid

¹⁶⁶ Facilitation Corporation Act, Article 48, paragraph 1,2, Article 49

¹⁶⁷ The institute was analyzed on the effects and costs of decontamination. Hukushima kennai no josennjissikuiki niokeru josenn no hiyou ni kannsuru kaiseki (hotaka, naito, The National Institute of Advanced Science and Technology, July 23, 2013) confit.atlas.jp/guide/event-img/jsap2014s/18p-D3-2/public/pdf?type=in

¹⁶⁸ NHK Radio 1 “NHK Journal” (aired on July 23, 2013)

-The general public ultimately shoulders decontamination costs. Decontamination activities should be considered not only from the viewpoint of acceptance by victims but also by the general public.

Concerns have also been voiced about increasing financing costs. Professor Akira Morita of Doshisha University has stated that “by not explicitly saying that nuclear operators have been freed from unlimited liability, TEPCO’s business base may become unnecessarily jeopardized” and that “the decline of TEPCO’s capacity for self-sustained financing is ironically increasing Government spending.”¹⁶⁹

Disadvantage 4: Lack of versatility as a compensation scheme for nuclear damages

In the event another electric power company causes an accident of the same scale as the TEPCO Fukushima accident (assuming that 4 trillion yen was provided by the Facilitation Fund for compensation payments), a company with less than 1 trillion yen in annual sales may require 100 years to repay all costs.

	FY2010		FY2011 (reference)		No. of employees	
	Operating profit	Current net profit	Operating profit	Current net profit	Non-consolidated	Consolidated
Hokkaido	31,694	7,658	-115,493	-132,819	5,496	-
Tohoku	89,256	25,805	-55,922	-103,698	12,423	24,726
Tokyo	284,443	133,775	-221,988	-685,292	35,761	48,252
Chubu	200,032	108,558	-14,483	-32,161	16,723	30,847
Hokuriku	4,714	169	11,758	98	4,693	7,006
Kansai	227,661	127,170	-314,012	-243,422	20,887	34,007
Chugoku	81,515	31,001	-4,005	-21,951	9,173	14,546
Shikoku	42,424	22,079	-50,337	-42,896	4,772	8,445
Kyushu	99,727	41,812	-299,423	-332,470	11,705	-

Source: compiled by author from summaries of financial statements and Yahoo! Finance corporate information

Table 11 Comparison of operating profit, current net profit and number of employees

In addition, while TEPCO has allocated over 10,000 employees to

¹⁶⁹ Keizai kyoushitsu. *Nihon Keizai Shimbun* July 12, 2011

direct compensation services as of April 1, 2013¹⁷⁰, some operators have less than 10,000 employees on a consolidated basis, which would make them incapable of providing the human resources required for compensation administration.

Furthermore, if a non-general electric power utility causes an accident – for example, if Japan Nuclear Fuel Limited (JNFL) were to have an accident at its reprocessing plant, its services to nuclear operators, and thus its source of profits, would be suspended; and therefore, the company would have no prospects of repaying finances.

Therefore, the current scheme to address compensation issues under the Facilitation Corporation Act may not be a realistic solution unless an accident of the same scale as that experienced in Fukushima is caused by Japan's largest electric power company, TEPCO.

Disadvantage 5: Legal justice of general contributions to be shouldered by other companies

Some questions have been raised concerning the legitimacy of general contributions paid out by nuclear operators. General contribution amounts are calculated by multiplying the total annual general contribution amount determined by the Facilitation Fund by the contribution rate set for each individual nuclear operator (Facilitation Corporation Act, Article 39, paragraph 1). The contribution rate shall be set in accordance with the criteria prescribed by Ordinance of the competent ministry, taking into consideration the scale, content of business, and other circumstances connected with each nuclear operator's reactor operation, etc. (Facilitation Corporation Act, Article 39, paragraph 3). Hence, although the Act provides for approval by the competent minister based on a Management committee resolution and consultation with the Minister of Finance, it is in effect a system that “tries to extract everything available from wherever it can.” Since general contributions can be included in the electricity tariffs,¹⁷¹ there have not yet been any major opposition from other

¹⁷⁰ www.tepco.co.jp/fukushima_hq/images/k130430_01-j.pdf

¹⁷¹ This was due to the adoption of the Ministerial Ordinance for Partial Revision of the Accounting Rule for the Electricity Business (Ordinance No.57 of the Ministry of Economy, Trade and Industry, 2011) which amended the Regulation for Calculating Electricity

nuclear operators. However, the legal validity of such burden is questionable and should be reconsidered along with how much each nuclear operator will actually be able to pay in contributions once the deregulation of the electricity market advances with the electric power system reform.

Disadvantage 6: Limits to victim relief based on monetary compensation under tort systems

The Facilitation Corporation Act stipulates a scheme to economically assist TEPCO in fulfilling its liabilities. The largest challenge revealed in the aftermath of the TEPCO Fukushima accident is how to recover “places of being,” such as homes, workplaces and local communities, which are lost in major nuclear accidents. These damages are impossible to compensate under tort systems¹⁷², and it has become evident that such schemes cannot reconstruct livelihoods in the way victims would hope for¹⁷³. The voices of victims in Namie Town, Fukushima Prefecture, where a voluntary group of Committee members visited, and the difficulties in resolving the damages incurred by this major nuclear accident under a tort system will be elaborated later herein.

Rates Stipulated in the Supply Provisions of General Electricity Utilities (Ordinance No.105 of the Ministry of Economy, Trade and Industry, 1999), the Regulation for Calculating Electricity Rates Stipulated in the Wheeling Service Provisions of General Electricity Utilities (Ordinance No.106 of the Ministry of Economy, Trade and Industry, 1999), and the Regulation for Calculating Wholesale Supply Rates ((Ordinance No.107 of the Ministry of Economy, Trade and Industry, 1999). Refer to Terakura, Kenichi. *Higashinihon daishinsaigo no genshiryoku songai baishou seido wo meguru keii to kadai* (Developments and challenges of the nuclear damage compensation system after the Great East Japan Earthquake)

¹⁷² Tanabe, Tomoyuki, M. Maruyama, Fukushima Daiichi Genshiryoku Hatsudensho Jiko ga teikishita waga kuni no genshiryoku songai seido no kadai to sono kokufuku ni muketa seido kaikaku no houkousei (The issues concerning Japan’s compensation system for nuclear damages raised by the accident at Fukushima Daiichi Nuclear Power Plant and the direction of system reforms to overcome the challenges) (Central Research Institute of Electric Power Industry, 2012) p35-, etc.

¹⁷³ At the Plenary Session of the House of Representatives on October 17, 2013, Katsumasa Suzuki, Secretary General of the People’s Life Party, asked, “Is it not necessary to support the positive life-planning of victimized people by assisting the establishment of ‘second homes’?” In response, Prime Minister Shinzo Abe said, “We should respect the decisions of local governments and individuals regarding whether or not victims will return to their home towns, and the Government intends to adequately consult and cooperate with local governments in order to provide prospects of future radiation levels and pictures of local futures in order to enable individuals to foster positive life plans.”

4. Provision regarding revision

As the abovementioned issues had been debated before the enactment of the Act, Article 6 of the Supplementary Provisions of the Facilitation Corporation Act stipulates its revision.

Article 6 (Review), paragraph 1 provides that in light of the verification of the causes, etc. of the TEPCO Fukushima accident, the implementation status of compensations for nuclear damage, and economic and financial conditions, etc., the Government shall discuss the clarification of State responsibility under nuclear compensation system, and Government involvement and responsibility in addressing an accident at a nuclear power plant, review the establishment of an organization for the prompt and appropriate resolution of disputes involving compensation for nuclear damage, and take necessary measures, including a fundamental re-examination of the Nuclear Compensation Act, including its amendment. Necessary measures are to be implemented within about a year¹⁷⁴ regarding the responsibilities of the Government and nuclear operators under the Nuclear Compensation Act and the functions of the Dispute Reconciliation Committee, as well as the Act on Special Measures Concerning Nuclear Emergency Preparedness.

Paragraph 2 provides that the Government shall review the status of enforcement of the Act from the perspective of minimizing the burden on citizens, including burden-sharing among the nuclear operator receiving financial assistance, the Government, and other nuclear operators, and the burden shouldered by shareholders and any other interested parties, and that it shall take the necessary measures based on the results of this review. Necessary measures are to be implemented regarding the structure of burden (general contributions and special contributions) under the Facilitation Corporation Act and TEPCO's revitalization of business within about two years after the enactment of the Act¹⁷⁵

¹⁷⁴ House of Representatives, Collateral Resolution No.11 to the Nuclear Compensation Facilitation Corporation Bill, Proceedings of the 16th meeting of the House of Representatives Special Committee on Reconstruction from the Great East Japan Earthquake of the 177th Session of the Diet, *available at*: www.shugiin.go.jp/internet/itdb_kaigiroku.nsf/html/kaigiroku/024217720110726016.htm

¹⁷⁵ House of Representatives, Collateral Resolution No.11 to the Nuclear Compensation

Paragraph 3 provides that the Government shall, from the perspective of contributing to stability and improvement in the lives of the citizenry and to the sound development of the national economy, in light of reviews of energy policy, review the best way of addressing such matters as State responsibility in nuclear policy, and shall take necessary measures based on the result of this review, including a fundamental re-evaluation of acts related to nuclear power. In the discussions upon the enactment of the Act, this paragraph was considered to require revision in the middle- to long-term, but no exact timing of revision has been determined.

5. Direction of revision

As aforementioned, the current scheme under the Facilitation Corporation Act embraces disadvantages as well as advantages. Our Committee did not go as far as to discuss revision, but the points that could be important upon revising the current scheme are provided below.

(1) The legitimacy of other nuclear operators shouldering costs and foreseeability

The source of funds provided to a nuclear operator by the Facilitation Fund are: i) general contributions shouldered by nuclear operators; ii) special contributions shouldered by the nuclear operator which caused the accident; and iii) Government aid. As aforementioned in the discussion on the fifth disadvantage, the legitimacy and foreseeability of general contributions, which are, shouldered by obligation by all nuclear operators in Japan, including the operator that caused the accident, are questionable. General contributions could be reserves for future accidents, but under current circumstances, they

Facilitation Corporation Bill, Proceedings of the 14th meeting of the House of Representatives Special Committee on Reconstruction from the Great East Japan Earthquake of the 177th Session of the Diet, *available at*: kokkai.ndl.go.jp/cgi-bin/KENSAKU/swk_dispdoc.cgi?SESSION=24696&SAVED_RID=2&PAGE=0&POS=0&TOTAL=0&SRV_ID=9&DOC_ID=8202&DPAGE=1&DTOTAL=1&DPOS=1&SORT_DIR=1&SORT_TYPE=0&MODE=1&DMY=2509

are used for compensation payments for damages incurred by the TEPCO Fukushima accident, with no distinction from special contributions. Therefore, they could constitute infringements of the property rights of electric power operators other than TEPCO. Also, as implied in the reference to the contributions as informally but administratively orchestrated “hogacho”-style contributions, , they are determined in the absence of explicit criteria, and hence lack foreseeability.¹⁷⁶ The Japanese scheme is said to have been based on the mutual assistance scheme under the U.S. Price-Anderson Act, which collects ex-post levies, the criteria and method of which can be reasonably explained and therefore ensures foreseeability on the part of operators. Under normal circumstances, operators are obligated to submit to the NRC evidence to ensure their means of payment and the total amount of the ex-post levy to be shouldered is predetermined, along with a ceiling amount for annual payments. This aspect should be drawn upon in the Japanese scheme. Furthermore, the mutual assistance arrangement among operators has also contributed to improved safety through increased peer reviews. Japan should also consider enhancing links between the nuclear compensation system and laws related to the Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors (“Reactor Regulation Act”). In addition to encouraging peer reviews, it may be effective to redesign the scheme so that the contribution rate of general contributions would change in accordance with the operators’ efforts in enhancing safety levels.

(2) Increased operator burden (increased burden among the general public and consumers)

The Facilitation Fund provides the Government aid stipulated in Section 16 of the Nuclear Compensation, but in effect provides provisional financial assistance, which is to be recovered at a later date.

¹⁷⁶ On March 22, 2013, the Nihon Keizai Shimbun reported that general contribution amounts were determined to be a total of 100.8 billion yen. It also said, “The Government / Facilitation Fund had hoped for 163 billion yen, twice the amount of fiscal year 2011, but held the total down at an amount equivalent to “seven months” of payments, with consideration for electric power companies that would face business difficulties.”.

In a broad sense being a “loan”, it is questionable whether this financial assistance really qualifies as the Government aid provided for in the Nuclear Compensation Act. It is also doubtful that the current scheme fulfills the two purposes of the Act, namely, “the sound development of nuclear power business” and “to protect persons suffering from nuclear damage.”

An especially serious issue is that the Government determines the criteria for decontamination which greatly impacts what is to be burdened by the operator, TEPCO, while it shoulders all expenses under Article 44 of the Act on Special Measures on Handling Pollution by Radioactive Materials.

As discussed in Section 3 of this chapter, upon the enactment of the Act on Special Measures on Handling Pollution by Radioactive Materials, it was decided without sufficient discussion that decontamination costs would be shouldered by the operator. Likewise, the grounds for setting the effective decontamination target are not clear either. The following figure illustrates the approach taken in determining decontamination targets. The current target, set pursuant to the basic principles of the Act on Special Measures on the Handling of Pollution by Radioactive Materials, is to “limit additional exposure to 1mSv/y as a long-term target in areas where cumulative radiation doses are below 20mSv/y.” This target aims to limit annual radiation dosage in addition to that from natural background radiation (0.38 mSv/y in terrestrial radiation from the ground and 0.29 mSv/y in cosmic radiation from space) to 1 millisievert per year.¹⁷⁷ The developments leading to the determination of this target were extremely political, as provided below:

April 19, 2011 Nuclear Emergency Response Headquarters sets 3.8μSv/h (equivalent to 20mSv/y) as provisional criteria for using school buildings and grounds in Fukushima Prefecture

April 29, 2011 Toshiso Kosako, Special Advisor to the Cabinet resigns in opposition to the above criteria

¹⁷⁷ First joint meeting of the Disaster-Related Waste Safety Assessment Committee and Environmental Recovery Committee on October 10, 2011, *available at*: www.env.go.jp/press/file_view.php?serial=18437&hou_id=14327

May 27, 2011 Ministry of Education, Culture, Sports, Science and Technology (MEXT) decides to set provisional radiation dose target for students at 1mSv/y or less and to provide financial assistance for activities to lower radiation dosage of soil

September 28, 2011 Cabinet Office and Ministry of the Environment (MoE) set out policy to conduct focused decontamination in areas with radiation doses less than 5mSv/y. Local governments express strong dissatisfaction

October 2, 2011 Goshi Hosono, then Minister of the Environment announces in a meeting with the Governor of Fukushima that the Government will be responsible for the decontamination of areas with radiation doses of 1-5mSv/y and provide financial assistance

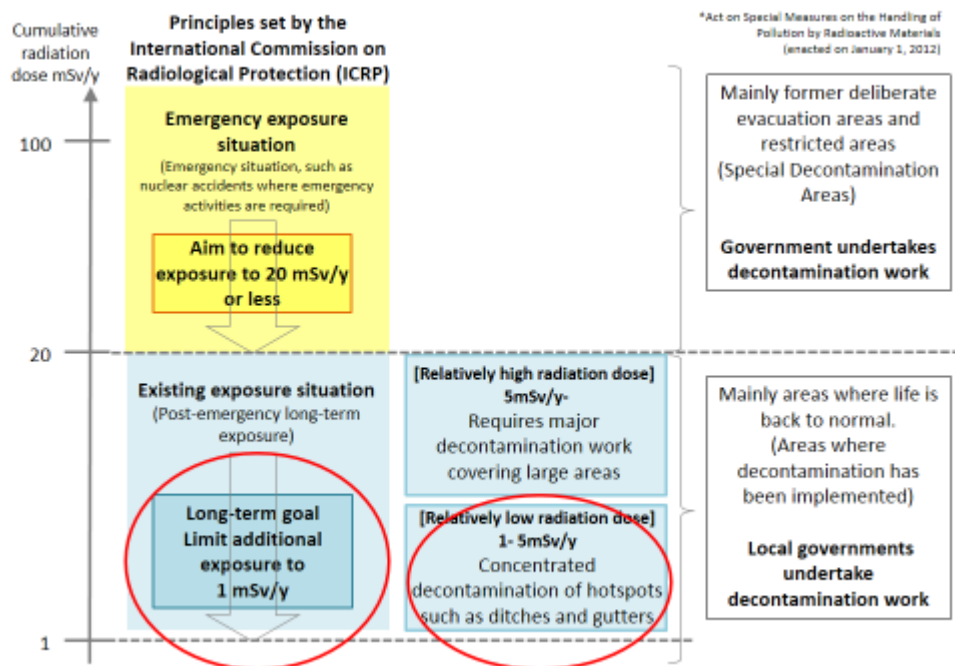


Figure 8 Approach taken in determining contamination targets

When the target was set at 5mSv/y, the area requiring decontamination covered approximately 1800km² of Fukushima Prefecture, but once the target was set at 1mSv/y the target area expanded to other prefectures in the north Kanto region, covering an

area of approximately 13,000 km²¹⁷⁸.

According to a report compiled by the Cabinet Office Working Group on Risk Management of Low-dose Radiation Exposure¹⁷⁹, “health risks from annual radiation exposure of 20 mSv are considered to be small when compared against, for example, the risks from other carcinogenic factors (smoking, obesity and a lack of vegetables in one’s diet, etc.) and are comparable to the risks accompanying preventive measures against radiation exposure (stress from evacuation, lack of exercise due to avoidance of outdoor activities, etc.).” However, the expansion of the criterion has created and established notions that “nonconformity will entail risk” or that “the target must be immediately met,” therefore keeping residents from returning to their homes. Against this backdrop, Fukushima Prefecture has also requested that safety standards based on scientific grounds be promptly presented (comment by Governor of Fukushima at a meeting between the Government and twelve local governments held on February 17, 2013¹⁸⁰).

Fukushima Prefecture’s request warrant revision of decontamination criteria based on scientific grounds and the Nuclear Regulation Authority (NRA) should be actively involved with such scientific safety standards which are directly related to the health issues of local residents. Article 3 of the Act for Establishment of the Nuclear Regulation Authority stipulates that the mission of the NRA is “to ensure safety in the use of nuclear energy [...] for the purpose of contributing to the protection of the life, health, and property of the citizens, preservation of the environment, and national security of Japan. The affairs under its jurisdiction stipulated in Article 4, paragraph 1 explicitly include “affairs concerning the prevention of radiation hazards” (subparagraph (v)) and “affairs concerning the development and promotion of basic policies on the monitoring and

¹⁷⁸ The Asahi Shimbun, October 11, 2011

¹⁷⁹ www.cas.go.jp/jp/genpatsujiko/info/twg/111222a.pdf

¹⁸⁰ On p35 of *WEDGE* September 2013, a comment made by Junichiro Tada of NPO Radiation Safety Forum, which has continued to support Fukushima, is introduced: “The target of 1mSv per year is now hindering rehabilitation in Fukushima.” It is also pointed out that food safety standards, set at 100 becquerels per 1kg (for common food), have also become one of the most strictest in the world based on political judgment.

measurement of radioactive material or radiation levels, and plans for allocating expenses among the relevant administrative organs” (subparagraph (vi)).

The current scheme, which obligates operators, without any opportunity to prove otherwise, to shoulder all costs including those which were increased in accordance with politically determined criteria, should also be revised. Burdens borne by the operator will eventually have to be shouldered by the general public and consumers in the form of taxes or electricity tariffs. Therefore, recalling the purpose of the Nuclear Compensation Act and the role of the Facilitation Fund, a scheme under which the Government will guarantee payment of amounts shouldered in excess of a certain amount and/or according to the form, scope and substance of the burden, should be incorporated into the Facilitation Corporation Act in order to seek prompt victim relief.

(3) Government involvement in local restoration

As indicated in the discussion about the sixth disadvantage, local communities which have been lost in major nuclear disasters such as the recent TEPCO Fukushima accident cannot be restored, regardless of how sufficiently tort-based monetary compensation is made available. If local communities cannot be restored, victims cannot be truly remedied; and hence, a scheme independent of the nuclear compensation scheme may need to be established.

The new scheme should be considered with a view to what operators should shoulder as discussed in subsection (2). A detailed proposal is made in Part III.

Chapter 2 The risks accompanying nuclear operations revealed in the Fukushima accident

Chapter 1 discussed how the TEPCO Fukushima accident was legally addressed and the context in which events occurred. Chapter 2 will discuss the risks accompanying nuclear operations that were revealed in the TEPCO Fukushima accident, in order to identify the challenges that need to be resolved if nuclear business is to be retained in Japan.

Various risks entailed in nuclear business were revealed as a result of the TEPCO Fukushima accident.

Since Japan's first commercial reactor, JAPC's Tokai Power Station began operation in 1957, nuclear operations have been promoted under the basic principles of taking a "lockstep approach" and being a "private business led by national policy". This framework was strengthened as a "back end risk consortium" (details can be found in Part I, Chapter 2), undermining the risk assessment functions of a capital market.¹⁸¹

Even before the TEPCO Fukushima accident, it was well-apparent that nuclear business was a "two-edged blade" that could generate large profits when in operation but could also be a significant burden, including the fuel costs to be required in the increased use of alternative thermal power, once stopped. When the Niigata-Chuetsu Earthquake that occurred in July 2007 stopped operations at TEPCO's Kashiwazaki-Kariwa Nuclear Power Plant, the company consequently posted a net loss of 150.1 billion Japanese yen on a consolidated basis in March 2008, running a deficit for the first time in 28 years since the Second Oil Crisis. TEPCO marked a net loss of 84.5 billion in 2009, therefore revealing that an electric power company's business as a whole was dependent on the operation rate of nuclear power plants.

The risks of being a back end risk consortium had been brought

¹⁸¹ Takeo Hoshi, Professor at the University of California, San Diego, stated in "Boukoku no Touden kyuusaian (TEPCO relief plans of a ruined country)" (Kinyu Keizai Jijo, May 30, 2011), "If Government aid is implemented, the supervision by financial suppliers which had originally been weak will be further compromised."

to light after a series of delays in the completion of the JNFL's reprocessing plant. A total of approximately 1000 tons of spent fuel are generated annually from nuclear power plants throughout Japan and it had been pointed out that if the reprocessing expected to be conducted by the JNFL is suspended, the storage pool and spent fuel pools at each nuclear power plant will become full sooner or later, forcing Japan's nuclear power plants to cease operations. It should be noted, however, that if in the end it becomes impossible for the JNFL to provide services to electric power companies due to additional regulations or other reasons, it will no longer be able to receive payment of the reprocessing costs set aside by each electric power company pursuant to the Spent Nuclear Fuel Reprocessing Fund Act, and will therefore experience funding difficulties. If the JNFL should fall into bankruptcy, then the electric power companies supporting the JNFL as joint shareholders (400 billion Japanese yen in capital) and joint guarantors (1 trillion Japanese yen) will risk being exposed to the domino effect.

The risks entailed in nuclear operations including those revealed in the TEPCO Fukushima accident are marshalled below:

1. Nuclear accident risk (for both front end and back end operations)

Until the TEPCO Fukushima accident occurred, it had been widely believed among concerned parties that the safety level was so high at Japanese nuclear power plants that they would never have accidents¹⁸².

¹⁸² The "nuclear safety legend" had prevailed among not only nuclear power operators but in wider spheres. For example, at a meeting of the House of Representatives Science and Technology Committee of the 145th Diet (March 16, 1999, asked about the safety of nuclear power plants in neighboring countries, Shigeru Aoe, Director General of the Science and Technology Agency's Atomic Energy Bureau replied, "It is very important for Japan, as a country with high nuclear technology to cooperate to a certain extent with neighboring countries in improving their safety levels." He went on to state, "Japan has taken measures in international cooperation by taking the initiative in international conferences, dispatching experts and accepting trainees." One of the reasons given for Japan not having joined international frameworks on nuclear damage compensation such as the Convention on Supplementary Compensation for Nuclear Damage (CSC) at the first meeting of the Committee, was that campaigns to promote becoming a party to such international agreements did not intensify because of concerns that if Japan was victimized, the Japanese citizens' right of access to the court could be limited, while there

However, the recent accident has brought us to understand the risk of accident and the magnitude of the impacts of a nuclear accident. Impacts of a nuclear accident include: i) the shouldering of compensation payments for damages (including administrative costs for compensation); ii) additional fuel costs for increased thermal power generation to replace suspended nuclear power generation; iii) the costs incurred in terminating the accident and those required for the decommissioning of reactors; and iv) growing difficulties in continuing operations as a result of these increased costs. The first impact was addressed by enacting the Facilitation Corporation Act, the second impact was resolved by having the costs burdened by users through increased electricity tariffs, and the third impact is currently being addressed in the Agency for Natural Resources and Energy in the ongoing discussions regarding the revision of accounting criteria on the decommissioning of nuclear power plants which are being taken in the direction of basically having consumers shoulder the costs that the reserved funds fail to cover. However, there have been no fundamental discussion about the fact that electric power companies may face difficulties in continuing their business due to these increased costs. Furthermore, as electricity system reforms advance, schemes such as tariff regulations based on FDC pricing and general mortgages which have supported the financing of electric power companies are likely to be abolished.

2. Increased costs accompanying ex-post alterations in policy and regulations (for both front end and back end operations)

On the night of May 6, 2011, then Prime Minister Naoto Kan held an emergency press conference to “request” the stoppage of operations at Hamaoka Nuclear Power Plant run by Chubu Electric Power Company

was substantially little chance that a nuclear accident would occur in Japan, compared to possibilities of Japan suffering damages from accidents in other countries.

(“Chuden”).¹⁸³ Chuden opened an extraordinary board meeting on May 9, and deciding to accept the request, suspended operations at the Hamaoka Plant. As the Hamaoka Nuclear Power Plant is located in an area in which a major earthquake, Great Tokai Earthquake, is projected to occur, the request tends to be supported by many as an appropriate measure.¹⁸⁴ However, its legitimacy remains extremely ambiguous¹⁸⁵ and the event set the path for many other developments in nuclear regulation that have undermined the foreseeability of nuclear business.

Drawing on the lessons learned the TEPCO Fukushima accident, on September 19, 2012 the Nuclear Regulatory Authority (NRA) and its secretariat, the Nuclear Regulatory Agency were established pursuant to the Act for Establishment of the Nuclear Regulation Authority¹⁸⁶. The NRA is to integrally govern affairs for independent nuclear safety regulation based on expertise, from a neutral and fair standpoint. Analyzing the TEPCO Fukushima accident, the National Diet of Japan Fukushima Nuclear Accident Independent Investigation Commission (NAIIC) indicated that Japan did not have a backfit rule, or legal framework for applying revised safety criteria on licensed nuclear power plants. Although the lack of a system to guarantee the incorporation of innovative safety technologies into Japan’s conventional administrative practices for nuclear safety should be improved, the retrospective application of regulatory criteria could pose risks for the business

¹⁸³ The entire press conference on the request for suspension of operations at Hamaoka Nuclear Power Plant is introduced on NHK Kabun blog, *available at*: www9.nhk.or.jp/kabun-blog/100/81095.html

¹⁸⁴ Some evaluate the “request” as a bold decision. The following private blog is an example: analyticalsociaboy.txt-nifty.com/yoakemaeka/2011/05/post-8fda.html

¹⁸⁵ Matsui, Kenichi. Fukushima genpatsu jiko wo norikoete – global energy shift no jidai (Overcoming the Fukushima nuclear power plant accident: the global energy shift era) (Energy Forum books, 2011) states that although the “request” had been made on the grounds that the risks of Hamaoka Nuclear Power Plant sitting on an active fault had been pointed out and that a Tokai Earthquake with a magnitude of 8 is likely to occur with a probability of 87% within 30 years, such contentions would undermine conventional views, as this fault is not included in the list approved by MEXT’s Headquarters for Earthquake Research Promotion. The Shizuoka District Court dismissed motions for a court injunction to suspend operations at the Hamaoka plant (October 2007) ruling that the fault in question was “not an active fault.” Matsui also points out that the Prime Minister’s “request,” in effect, acknowledged that conventional Government views and district court rulings had been mistaken (p108)

¹⁸⁶ Outline of the Nuclear Regulatory Authority and draft for new safety criteria, *available at*: www.jaif.or.jp/ja/news/2013/panel02_yamamoto.pdf

environment of nuclear power generation, depending on how such frameworks are used. Detailed discussion on nuclear safety regulations can be found in 21st Century Public Policy Institute's report, *Toward a Comprehensive Solution for Nuclear Policy and Business Challenges*.¹⁸⁷

Some of the impacts of such ex-post alterations in policy and regulations include: i) additional fuel costs for increased thermal power generation to replace suspended nuclear power generation; ii) the costs incurred in meeting the requirements of new regulations; and iii) growing difficulties in continuing operations due to these increased costs (in particular, for JAPC). Resolutions for the first and second impacts have been sought through having customers shoulder the costs by raising electricity tariffs, but the third issue of JAPC facing difficulties in continuing business is critical. JAPC has one nuclear power plant in Tokai Village in Ibaraki Prefecture, and two, in Tsuruga City, Fukui Prefecture. Regarding the fault fracture zone located within the premises of the Tsuruga Nuclear Power Plant, the NRA has accepted the report by a meeting of experts that the D-1 fracture zone which runs right under the Tsuruga Power Station Unit 2 "is likely to be an active fault that is taken into consideration in seismic design." (Given JAPC's submission of an open letter to the NRA in December and its intention to conduct independent studies, the debate is yet to be resolved at the time of writing this report.) JAPC faces critical difficulties in operating its nuclear power plants, including the Tsuruga Power Plant Unit 1, an aged plant that began operations in 1970 which is located on the same premises as Unit 2 and the Tokai No.2 Power Station, which is exposed to strong opposition against its restart,. If they are to be decommissioned, JAPC will not only lose the promised profits from power generation but will also suffer a decrease in its total assets and increased decommissioning costs which could jeopardize the continuity of the company's business¹⁸⁸. Hence, the need to discuss

¹⁸⁷ For details, refer to: Sawa, Akihiro and Sumiko Takeuchi. *Toward a Comprehensive Solution for Nuclear Policy and Business Challenge* (21st Century Public Policy Institute, 2013). Skeptic views of the current regulatory activities by the NRA can be found in, for example, "Genshiryoku kisei iinkai no ayau "yaruki" wo hihan suru (Criticizing the dangerous enthusiasm of the Nuclear Regulatory Authority)" *available at* agora-web.jp/archives/1506695.html

¹⁸⁸ The Asahi Shimbun dated July 12, 2013 reported that although the company has 162.9

how risks and costs incurred by policy changes should be shouldered have been put forth by many, including Makoto Yagi, Chairman of the Federation of Electric Power Companies (FEPC) and President of Kansai Electric Power Company (KEPCO), who said, “We will discuss the cost burden with the Government if nuclear power operators are compelled to decommission nuclear power plants as a result of policy change.”

3. Risks of technological challenges (decommissioning of reactor in accident, back end operations including reprocessing)

The processing of spent fuel can be divided into a once through (or, open cycle) approach (where fuel is used once and then sent to storage) and a reprocessing approach. Japan has pursued a policy aimed at domestically establishing a nuclear fuel cycle since announcing the Long-term Plan for Research and Development and Utilization of Nuclear Energy¹⁸⁹ in 1956. The advantages of a nuclear fuel cycle process are that: i) the volume of high-level radioactive waste can be reduced to one-seventh through reprocessing and the use of fast reactors; ii) the time required for the toxicity to be reduced to the same level as the original uranium fuel can be reduced from approximately 100,000 years to approximately 300 years; and iii) when the fast-breeder reactor fuel cycle becomes viable in the future, uranium resources will be able to be reused for thousands of years.¹⁹⁰ However, various problems including high costs and high-level radioactive liquid waste issues have also been voiced from skeptics¹⁹¹.

Whether or not the nuclear fuel cycle policy should be sustained must be considered not only from economic dimensions but also from the viewpoints of nuclear non-proliferation (plutonium management)

billion yen net assets, if the three reactors are to be decommissioned, it will end up with an asset deficiency of 98.2 billion yen.

¹⁸⁹ www.aec.go.jp/jicst/NC/tyoki/tyoki1956/chokei.htm#sb1050507

¹⁹⁰ Material compiled by the Agency of Natural Resources and Energy, November 2012. www.enecho.meti.go.jp/committee/council/basic_problem_committee/033/pdf/33-4.pdf

¹⁹¹ “Invoice of 19 trillion yen,” supposedly written by a young METI officer in spring 2004, *available at*: kakujoho.net/rokkasho/19chou040317.pdf

and energy security. The risks associated with private operators continuing to shoulder the nuclear fuel cycle, which still embraces technological uncertainties, have been brought to light, as undermentioned.

The current framework for back end operations is provided below:

- a) Decommissioning operations: respective nuclear operators (owners of reactors); decommissioning costs are reserved by each nuclear operator
- b) Storage of spent fuel: JNFL (approximately 2,945 tons as of July 2013), on-site storage at nuclear facilities by the respective nuclear operators (approximately 14,000 tons as of March 2013); TEPCO and JAPC have succeeded in siting an interim used fuel storage facility, the Recyclable-Fuel Storage Company (RFS) Mutsu, which has yet to start operations.
- c) Reprocessing of spent fuel: JNFL
- d) Final disposal of radioactive waste: JNFL (low-level), NUMO (high-level, TRU waste)
- e) MOX fuel processing: JNFL
- f) Consumption of MOX fuel in the near future: Plans for commercial operation of the advanced converter reactor, Fugen, were abandoned due to high costs. The “Pluthermal” policy is to be implemented in all light-water reactors in Japan, beginning with the Ohma Nuclear Power Plant under construction by Electric Power Development Co., Ltd. which will operate on full-MOX fuel.

In addition to the issues that reprocessing spent fuel entails more cost than underground disposal and that the final disposal site for high-level radioactive waste is yet to be determined, in terms of reprocessing technology (c), although operations have started at the experimental facility of the Japan Atomic Energy Agency (JAEA) (formerly, the Power Reactor and Nuclear Fuel Development Corporation (PNC)) in Tokai Village, Ibaraki Prefecture, the completion of the reprocessing plant that the JNFL is constructing in Rokkasho Village, Aomori Prefecture, has been postponed 19 times due to technological problems. The JNFL seeks to complete construction by the end of this year and to initiate operations as soon as possible, but it remains uncertain where the safety checks

conducted by the NRA based on the new safety standards will lead.

As aforementioned, if additional regulations should impair smooth operations in the future, challenges including: i) increased deficits due to delayed work on the part of JNFL; ii) increased costs required to address such delays; and iii) growing difficulties in continuing operations due to increased costs will arise, as well as obstacles in determining a final disposal site for nuclear waste. As mentioned in the beginning of this chapter, if the JNFL should fall into bankruptcy, then the electric power companies supporting the JNFL as joint shareholders (400 billion Japanese yen in capital) and joint guarantors (1 trillion Japanese yen) will experience worsening business conditions all at once. All of these risks are related to the technological uncertainties of the back end process which have yet to be addressed.

This chapter discussed the risks related to nuclear business including those which had not been revealed until the TEPCO Fukushima accident. In Japan, especially, the difficulties of having the private sector shoulder the nuclear fuel cycle policy, which should be supported by the nation as a whole, has aggrandized. Explicit political and administrative decision is required on whether Japan will continue exhibiting to the rest of the world a model for the peaceful use of nuclear technology centered on a nuclear fuel cycle policy or whether Japan will make a policy change. The author would like to make a strong point that if Japan is going to maintain its nuclear fuel cycle policy, an overall discussion on the sharing of responsibility, including who and how risk of accident, risk of ex-post alterations in policy and regulations and risk of technological challenges should be shouldered, will also be called for.

Chapter 3 The challenges of the current nuclear compensation scheme and ideas for revision

This chapter will identify the schemes that need to be reformed or improved in order to reduce the risks and uncertainties of nuclear business and to be fully prepared for major disaster, while continuing nuclear business, as well as the direction in which revisions should be made. Based on the discussions held at Committee meetings and ideas provided by concerned parties, issues will be discussed under three categories.

1. Ideas for limiting risks and risk-sharing

(1) Problems arising from the ambiguity of the definition of “nuclear damage”

The estimated compensation payment amounts due to the TEPCO Fukushima accident have increased with time, partly due to the difficulty of predicting damages immediately after the occurrence of an accident. The required compensation payment estimated in TEPCO’s business plan is provided in table 12.

As aforementioned, the Act on Special Measures on Handling Pollution by Radioactive Materials stipulates that decontamination costs would be shouldered by the operator as damage for which “the nuclear operator who is engaged in the reactor operation etc. on this occasion shall be liable” pursuant to Section 3, paragraph 1 of the Nuclear Compensation Act. According to estimates by the National Institute of Advanced Industrial Science and Technology (AIST)¹⁹², the costs required for decontamination may exceed 5 trillion yen.

¹⁹² Hodaka and Naito. Fukushima kennai no josen jisshi kuiki ni okeru josen no hiyou ni kansuru kaiseki (Analysis on decontamination costs in decontamination areas in Fukushima Prefecture) (AIST, July 23, 2013), available at confit.atlas.jp/guide/event-img/jsap2014s/18p-D3-2/public/pdf?type=in

Timing		Estimated required compensation payment amounts	Reasons for estimate or revision
November 2011	Emergency special business plan	1,010,908,000,000 yen	Compensation payment amounts for the range of damages that can be estimated with reasonable certainty at the timing of formulating the plan
February 2012	Emergency special business plan	1,700,322,000,000 yen	Beginning of compensation for damages related to voluntary evacuation
May 2012	Comprehensive Special Business Plan	2,546,271,000,000 yen	Beginning of partial inclusion of compensation for property damage in estimates
February 2013	Comprehensive Special Business Plan (revised)	3,243,079,000,000 yen	Reflection of the Concept for Compensation Standards following Review of the Areas under Evacuation Orders
June 2013	New Special Business Plan	3,909,334,000,000 yen	Revisions made in accordance to progress in the Concept for Compensation Standards following Review of the Areas under Evacuation Orders; revision of the scope of harmful rumor-induced damages in agriculture, the forestry and fisheries sectors and processing and the distribution sectors

Source: compiled by author based on information on TEPCO website

Table 12 Required compensation payments estimated in TEPCO's business plan

How did the nuclear damages to be burdened by nuclear operators increase to such an extent? According to comments made by Committee members, it owes largely to the ambiguity of the definition of “nuclear damages.”

The Nuclear Compensation Act, which stipulates that “as used in this act, ‘nuclear damage’ means any damage caused by the effects of the fission process of nuclear fuel, or of the radiation from nuclear fuel etc., or of the toxic nature of such materials (which means effects that give rise to toxicity or its secondary effects on the human body by

ingesting or inhaling such materials)” (Section 2, paragraph2), only refers to the causes of nuclear damage. Therefore, pursuant to the principles of the Civil Code, damage is compensated only to the extent that adequate causation can be acknowledged between the damage and radiation. The approach that not all damages caused by negligence shall be completely compensated but that only those with adequate causation shall be compensated is based on the concept that the actor must have calculability and foreseeability within a certain range of risk.¹⁹³

In English and American law and in German law, negligence tort liability is limited for pure economic loss. The most important grounds for this approach is that without limits, the victimizer’s liabilities would be unlimited (“flood gate argument”) and therefore unreasonable.¹⁹⁴ Based on this theory, the damage induced by harmful rumors which accounts for a large portion of the damage compensated by TEPCO would be excluded from nuclear damage, limiting damage to personal damage (including late injuries) and property damage accompanying nuclear disasters.¹⁹⁵ In the Draft Summary of the Proceedings of the Fourth Meeting of the Special Committee on a Nuclear Compensation System¹⁹⁶ from September 30, 1998, the following acknowledgement is shared among committee members (emphasis added by author):

<Concerning nuclear damage (costs for precautionary measures)>

(Endo) Please tell us about interpretations or precedents on so-called damage incurred by harmful rumors? I would also like to ask about interpretations in international agreements.

(Secretariat) Our understanding is that damage incurred by harmful rumors

¹⁹³ Morishima, Akio. Genshiryoku jiko no higaisha kyusai (2) – songaibaisho to hosho (Victim relief in nuclear accidents (2): indemnification and compensation for damages), *Toki no Hourei*, Vol. 1882, p40

¹⁹⁴ Details can be found in: Yoshino, Atsuto, “Junsui keizai sonshitu” ni kansuru gakusetsu no kento – igirisu hou ni okeru giron wo chuushin ni (A study of scholarly theories on “pure economic loss”: with a focus on discussions in English law), *Houritsu Rongen* Vol.83, No.1

¹⁹⁵ Japan Energy Law Institute. Genshiryoku songai baishou housei shuyou kadai kentoukai houkokusho (Report of the Panel on Major Issues Regarding a Legal Framework for Nuclear Compensation) (2005), p3

¹⁹⁶ www.aec.go.jp/jicst/NC/senmon/old/songai/siryo/siryo05/siryo1.htm

is not nuclear damage. For example, in 1988, the Nagoya High Court ruled that there was no adequate causation between harmful rumors about radioactive contamination from JAPC's Tsuruga plant and reduced fish sales. (Nohmi) First of all, if liability (negligence) can be acknowledged in for creating the cause of harmful rumors and there is adequate causation between that and the damage incurred by the harmful rumor, the damage can be compensated under tort law as stipulated in the Civil Code. However, the understanding is that since it is not nuclear damage, it is not an matter of the Nuclear Compensation Act. International agreements are understood to follow the same understanding.

<Concerning the concept of nuclear damage>

(Yamazaki) Since the Nuclear Compensation Act is a special law under the law of torts in the Civil Code, nuclear damage is limited. The issue is whether or not to indemnify costs incurred outside of nuclear damages

(Chairman) That is beyond the scope of the Nuclear Compensation Act and should not be discussed here.

(Torii) The financial security amount is determined with no regard to the amount that must be compensated, and therefore, there is no meaning in discussing how to allocate the financial security amount.

(Nohmi) Of course, the financial security amount and compensation payment amounts are separate, but when an accident occurs, the financial security amount is first allocated for victim relief. Since this amount is limited, should not personal damage with high levels of emergency be prioritized?

However, Guidelines 7-1 to 5 of the Interim Guidelines by the Dispute Reconciliation Committee acknowledge damages incurred by harmful rumors. (Guideline 7-1 II "damage incurred by harmful rumor shall be included in damages to be compensated if adequate causation with this accident can be acknowledged.")

According to Professor Tadashi Otsuka of Waseda University Graduate School of Law who is also a committee member on the Dispute Reconciliation Committee, "In precedents in Japan, the scope of compensation has only been determined by applying Section 709 of the Civil Code or applying Section 416 based on reasoning by analogy (ruling of the Supreme Court on June 7, 1973, *Minshu* Vol27, No.6,

p681) and there is no reason to exclude pure economic loss.”¹⁹⁷ While Japanese courts had conventionally been reluctant to acknowledge damage induced by harmful rumors (Toyama Bay mercury pollution case, Tsuruga Nuclear Power Plant harmful rumor-induced damage case, JCO criticality accident and fisheries product processing company, JCO criticality accident and decline in real estate prices), some rulings had begun to acknowledge damage induced by harmful rumors since the JCO criticality accident. (The court acknowledged damage induced by harmful rumors for two claims which were filed by *natto* manufacturers after the JCO criticality accident, but presented largely different value judgments regarding temporal limits, including when damage induced by harmful rumors would end, and the calculation of compensation amounts.)¹⁹⁸ Taking these developments into consideration, some contend that the reason that pure economic loss and environmental damage have not been acknowledged as nuclear damage in other countries is that because the liability of nuclear operators is limited, there was a need to prioritize the damages to be compensated, and pure economic loss was excluded because of its comparatively low priority, whereas in Japan, after the JCO accident, damage induced by harmful rumors has gained wide recognition as a form of damage and is compensated without being given an order of priority in Japan’s unlimited liability regime.¹⁹⁹

However, many Committee members indicated that the inclusion of pure economic loss (damage induced by harmful rumors) and environmental damage (decontamination) in the concept of nuclear damages should be carefully deliberated, considering the impact that such conclusions would have on future theories of tort law. It should be noted that the Committee does not take the position of denying any compensation for these damages, but instead believes that such items

¹⁹⁷ Takahashi, Shigeru and Tadashi Otsuka. *Shinsai, genpatsu jiko to kankyouhou* (Earthquake-induced disaster, nuclear accident and environmental law) (Minjihokenkyukai, 2013)

¹⁹⁸ Yamashita, Fujii, Sasaoka and Honda. *Genpatsu jiko to huuhyou higai – higaisha souki kyusai no kanten kara* – (Nuclear accidents and damage induced by harmful rumors: from the viewpoint of prompt victim relief) (NBL957, July 15, 2011)

¹⁹⁹ Utatsu, Noboru. *Genshiryoku songai baishou no houritsu mondai* (The legal issues of nuclear damage compensation), (KINZAI value series)

should be considered under a scheme separate from the compensation scheme for nuclear damages, which is based on tort law.

(2) Considerations of increasing the financial security amount

The Nuclear Compensation Act determines the financial security amount payable by each nuclear operator depending on the content and scale of its nuclear operations. Operators who operate nuclear reactors with thermal output of over 10,000 kW must make available 120 billion yen in the form of: i) private insurance policies (nuclear damage liability insurance policy) and a government indemnity agreement (indemnity agreement for nuclear damage compensation; ii) deposit; or iii) other measure equivalent to i) or ii). TEPCO had concluded private liability insurance policies and a government indemnity agreement worth 120 billion yen for the Fukushima Daiichi Nuclear Power Plant as a whole. The Government provided 120 billion yen in indemnification payments under its Second Supplementary Budget for fiscal year 2011 which was paid out to TEPCO in November, 2011. (Private insurers were exempt from payment because insurance policies exempt coverage of natural disasters such as earthquakes and tsunamis.)

However, the TEPCO Fukushima accident revealed that the current financial security amount was insufficient and that a series of accidents could concurrently occur on the same site. Then, to what extent can the financial security amount be increased?

In Japan, nuclear insurance is provided as coinsurance by a pool.²⁰⁰ This is because: i) nuclear insurance covers a small number of facilities and is therefore not subject to the “law of large numbers;” and ii) total subscriptions would add up to a large amount of money. The initial financial security amount was determined to be 5 billion yen when the Act was enacted, not because the required compensation payment amounts were estimated to be 5 billion yen, but because that

²⁰⁰ The Japan Atomic Energy Insurance Pool was established in March 1960 to undertake nuclear liability insurance and nuclear energy property insurance as well as conduct reinsurance operations. As of April 1, 2012, the pool comprises 23 companies and has overseas reinsurance transactions with 22 nuclear insurance pools in UK and other EU states, the U.S., South Korea, and China, etc.

was the maximum viable amount, including reinsurance by overseas insurance pools.²⁰¹ As aforementioned, as insurance companies provided more insurance, the financial security amount was increased, gradually approaching the current amount of 120 billion yen.

What is the upper limit to increasing amounts covered by private insurance policies? Although precise estimations cannot be made without setting detailed premises, it has been suggested that 200 billion yen would be the ceiling amount to enable the stable provision of insurance. Therefore, when the compensation payment amounts required amount to several trillions of yen, as is the case in the TEPCO Fukushima accident, an incident cannot be sufficiently covered in any case.

The Committee studied the potentials of: i) an ex-post mutual assistance scheme as that under the U.S. Price-Anderson Act; and ii) financing from the capital market (nuclear catastrophe bonds).

i) Ex-post mutual assistance scheme among operators²⁰²

When the Price-Anderson Act which stipulates the U.S.'s nuclear compensation scheme was enacted in 1957, it placed a ceiling of 560 million dollars on the public liability of a nuclear operator per one nuclear accident, requiring companies to obtain the largest coverage available in nuclear liability insurance from the private insurance industry and provided for further government commitment. The largest coverage available then was 60 million dollars, and hence, government indemnification accounted for the remaining 500 million dollars. In 1957, as there was little known about nuclear risk and the number of facilities to be covered by insurance were limited, private insurance

²⁰¹ However, Utatsu, Noboru. *Gendai genshiryokuhou no tenkai to houriron dai 2 han* (The development and legal theory of modern nuclear energy law, second edition) (Nihonhyouronsha, 2012) P294 points out that “insurers undertake more property insurances (whereas in Switzerland, the property insurance coverage for a nuclear reactor is fourfold of liability insurance amounts.” And “limitation of liability on the part of the nuclear operator cannot be justified by capacity limits of the insurer to undertake insurance.”

²⁰² Much information on the Price-Anderson Act was derived from Utatsu, Noboru. *Gendai genshiryokuhou no tenkai to houriron dai 2 han* (The development and legal theory of modern nuclear energy law, second edition) (Nihonhyouronsha, 2012) and from Mr. Utatsu, himself.

companies would undertake small subscriptions. Therefore, the federal government had to offer 500 million dollars in government indemnification in order to limit the liability of operators to an aggregated amount of 560 million dollars with the private insurance amount, in order to promote private sector participation in the nuclear business.

However, such government indemnification was criticized to be “overprotective” of the nuclear industry, in particular by conventional energy-related industries, including the coal industry. Hence, in the 1975 amendment, a mutual assistance program (secondary financial protection) was introduced among operators. Under this program, not only the nuclear operator which caused the accident but also all other nuclear operators would provide a maximum of 5 million dollars per nuclear reactor. With increased private insurance coverage (160 million dollars as of 1982) and the introduction of the secondary financial protection, the role of government indemnification was gradually narrowed, until it finally diminished in November 1982, when the 80th nuclear reactor was licensed and the total liability limit of 560 million dollars could be collectively covered by 160 million dollars in private liability insurance and secondary financial protection payments of 5 million dollars multiplied by 80 reactor units.

In the 1988 amendment, the ex-post payment amount to be shouldered by operators was increased to 63 million dollars per unit (payable at a rate not to exceed 10 million dollars per year), given opinions that Act should be amended to provide for unlimited liability in effect, as well as impacts of the 1986 Chernobyl accident. The current premium amount is 111.9 million dollars per unit (payable at a rate not to exceed 17.5 million dollars per year), after inflation adjustments every five years. The historical structural changes to the Price-Anderson Act is illustrated in the figure below:²⁰³

²⁰³ Provided by Noboru Utatsu.

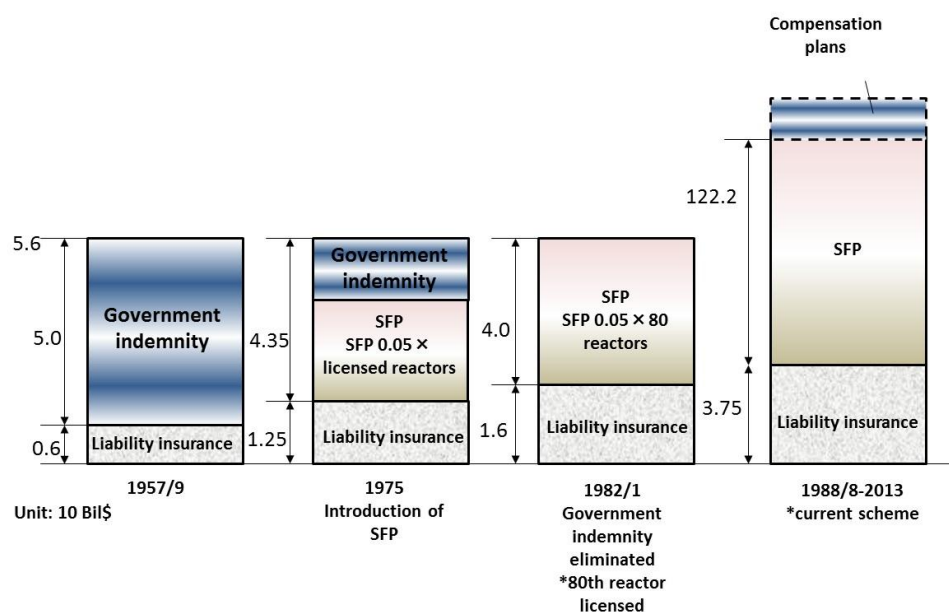


Figure 9 Price-Anderson Act

The general contributions payable under the current Nuclear Compensation Act is said to be based on the mutual assistance program among operators under the Price-Anderson Act. However, under the Price-Anderson Act, the operator is obligated to submit to the Nuclear Regulatory Commission (NRC) evidence of that it has secured the secondary financial protection amount (Section 170, subsection b) so that concerned parties can foresee the ceiling set for damage compensation payments that they would have to shoulder. Given the provision in Section 170, subsection i(2)b, “recommendations for additional sources of funds to pay claims exceeding the applicable amount of aggregate public liability shall consider a broad range of possible sources of funds (including possible revenue measures on the sector of the economy), the Price-Anderson Act is sometimes referred to as “not taking a limited liability approach despite general understanding of the Act.” Nevertheless, operators and other concerned parties enjoy the advantages of guaranteed foreseeability of the near future.

The reason that the mutual assistance program among operators is also referred to as an “ex-post levy collection scheme” is because the payments are considered to be retrospective premiums. In addition, the provisions stipulate, in detail, means for securing payments, such as

that the U.S. nuclear insurance pool shall cover for up to a total of 30 million dollars per accident, or an accumulated total of 60 million dollars of retrospective premiums that insured licensees fail to pay.²⁰⁴

The mutual assistance program among operators is not only effective in increasing financial security amounts but also - and perhaps more importantly - in encouraging competition among operators in compliance with safety regulations through peer reviews (details can be found in the report on interviews in the U.S. aforementioned).

Japan has 50 reactors, which is approximately half the number in the U.S.. It was mentioned in Committee meetings that given the limits to amounts coverable by insurance, a mutual assistance program among operators may effectively boost the financial security amount and foster a mutual safety monitoring system among operators.

ii) Consideration of the potential procurement of funds for nuclear damage compensation payments from the capital market

In addition to an ex-post mutual insurance scheme, the Committee also considered the possibility of procuring compensation payment amounts from the capital market, that is, the formulation of a nuclear catastrophe bond, which securitizes major natural disaster risks.

Given the diversification, complexity and burgeoning of corporate risks, the importance of risk financing has long been advocated²⁰⁵, and consequently, various insurance and financial products have been devised, amounts impossible to procure in the insurance or re-insurance market could be procured from the capital market. Of the many different types of risk financing that are available as exhibited in the table below, catastrophe bonds (“cat bonds”) can be used in response to extraordinary disaster risks such as earthquakes.

²⁰⁴ Utatsu, Noboru. *Gendai genshiryokuhou no tenkai to houriron dai 2 han* (The development and legal theory of modern nuclear energy law, second edition) (Nihonhyoronsha, 2012), p43

²⁰⁵ The Ministry of Economy, Trade and Industry (METI) launched a Risk-Financing Study Group in September 2005 for the purpose of encouraging many companies to appropriately address risk-financing. The report compiled the study group is available from the National Diet Library’s digital collection at: dl.ndl.go.jp/info:ndljp/pid/1009715

A cat bond securitizes the risks of extraordinary disasters, such as earthquakes, typhoons, cold waves, and hurricanes, which have a low risk of occurring but will cause major damage when they do occur, and transfers such risks to the financial and capital markets.²⁰⁶

Cat bonds feature many advantages including: i) the transfer of risk to the capital market (an indefinite number of investors) –by dispersing risk among a number of investors, risk of a scale impossible to cover in the insurance market can be transferred; ii) the flexibility of product design; iii) the avoidance of credit risk (monies can be collected before risks occur and credit risk is avoided as necessary monies are secured by the special purpose vehicle (SPV)); and iv) the possibility of long-term contracts. However, it should be noted that this is at the expense of: i) issuing costs; and ii) disclosing the risk quantification and analysis conducted in order to secure the transparency of information for investors.

Cat bonds came to be widely used after Hurricane Andrew hit the U.S. accompanying intense damage (amounting to approximately 2 trillion dollars in insurance payments). A well-known Japanese case is the securitization of earthquake risks in 1999 by Oriental Land Co., Ltd., which owns Tokyo Disneyland²⁰⁷. Under Oriental Land's scheme, when an earthquake of a certain magnitude, originating at depths 101 km or less, occurs within a 10km, 50km, or 70km radius of Maihama, home to Tokyo Disneyland, the earthquake would constitute a trigger event for principal reduction.

²⁰⁶ Cat bonds are discussed in the aforementioned Risk Financing Study Group Report (footnote 205); Yoshizawa, Takuya. *Kigyō no risk finance to hoken (Corporate risk financing and insurance)* (Chikurashobou); Ministry of Land, Infrastructure and Transport (MLIT). *Shakai shihon unei ni okeru kinyū shūhō wo mochiita shizen saigai risk heijunka ni kansuru kenkyū (Study on leveling natural disaster risk using financial methods in social capital operations)* (Policy Research Institute for Land, Infrastructure, Transport and Tourism Research Report Vo.62) available at: www.mlit.go.jp/pri/houkoku/gaiyou/pdf/kkk62.pdf; Cabinet Office Economic and Social Research Institute. *Shizen saigai risk no tokushusei to sono risk management no konnaisei: kigyō no shizen saigai risk management ni kansuru survey (Major Characteristics of Disaster Risk and the Difficulties in its Management: A Survey of Corporate Disaster Risk Management)*, (ESRI discussion paper series no.199) available at: www.esri.go.jp/jp/archive/e_dis/e_dis199/e_dis199.pdf#page=26

²⁰⁷ Oriental Land Co., Ltd., Notice on fund procurement using risk financing to cover earthquakes, www.olc.co.jp/wpmu/wp-content/blogs.dir/2/files/2011/09/20110906_0111.pdf

Risk-financing method		Retention/transfer	Promptness of payment	Basis risk	Individuality of product	Administrative costs*	Contract period	Accounting approach**	Effective uses
Shareholder equity		Retention	-	-	-	-	-	On-balance	Used to procure funds, unlimited to risk
Commitment line			Short time required from occurrence of risk to payment	-	Contract substances standardized, requires comparatively little time before conclusion of contract	Relatively small, compared to risk-transfer products. (obligation for repayment)	Mostly short-term to 1 year	Off-balance	
Contingent debt					A tailored product, requires time to design scheme		Mostly long-term (several years)		Used to secure liquidity after occurrence of accidents and disasters
Insurance	Conventional insurance	Transfer	Usually requires certain amount of time from occurrence of risk to payment for damage investigation and assessment (payments on account)	Actual damage amounts paid (first-loss insurance)	Contract substances comparatively standardized, requires comparatively little time before conclusion of contract	Relatively standardized and covering various risks, comparatively low cost against other risk-transfer products	Mostly 1 year	Off-balance	Widely used for variety of risks
	Finite insurance	Retention & transfer			A tailored product, requires time to design scheme	Given high individuality, potential high costs compared to conventional insurance	Long-term (several years)	Off-balance (requires "adequate risk transfer")	Soil contamination and other risks with little risk data
	Captive insurance				Generally, same as "conventional insurance"	Requires establishment of insurance subsidiary and operating costs	Basically same as conventional insurance	On-balance (if consolidated subsidiary)	Risk management center
Insurance derivative		Transfer	Short time required from occurrence of risk to payment	Generally, potential gap between actual damage and payment amounts	Contract substances standardized to certain degree, requires comparatively little time before conclusion of contract	Given high individuality, higher costs compared to conventional insurance	Mostly short-term to 1 year	Off-balance	Mostly hedges weather risk (some cover earthquakes and other disasters)
Contingent equities								Off-balance	(No cases in Japan)
Cat bonds				Depends on trigger event; generally, Short time required from occurrence of risk to payment	Depends on trigger event; Generally, potential gap between actual damage and payment amounts	A tailored product, requires time to design scheme	Given high individuality, requires high design costs; suitable for large projects	Mostly long-term (several years)	On-balance (Off-balance depending on scheme)

*Administrative costs: costs incurred in risk analysis and costs required for scheme design, including, fees, attorney's fees, registration costs,

**Accounting (financial accounting) approach: how amounts provided as a result of using risk financing (for example, "insurance payment" of an insurance policy), not costs incurred in introducing risk financing products, are presented on the balance sheet.

Source: Risk Financing Study Group Report, Part 1 (Toward the development of risk financing), p11

Table 13 Major risk-financing methods

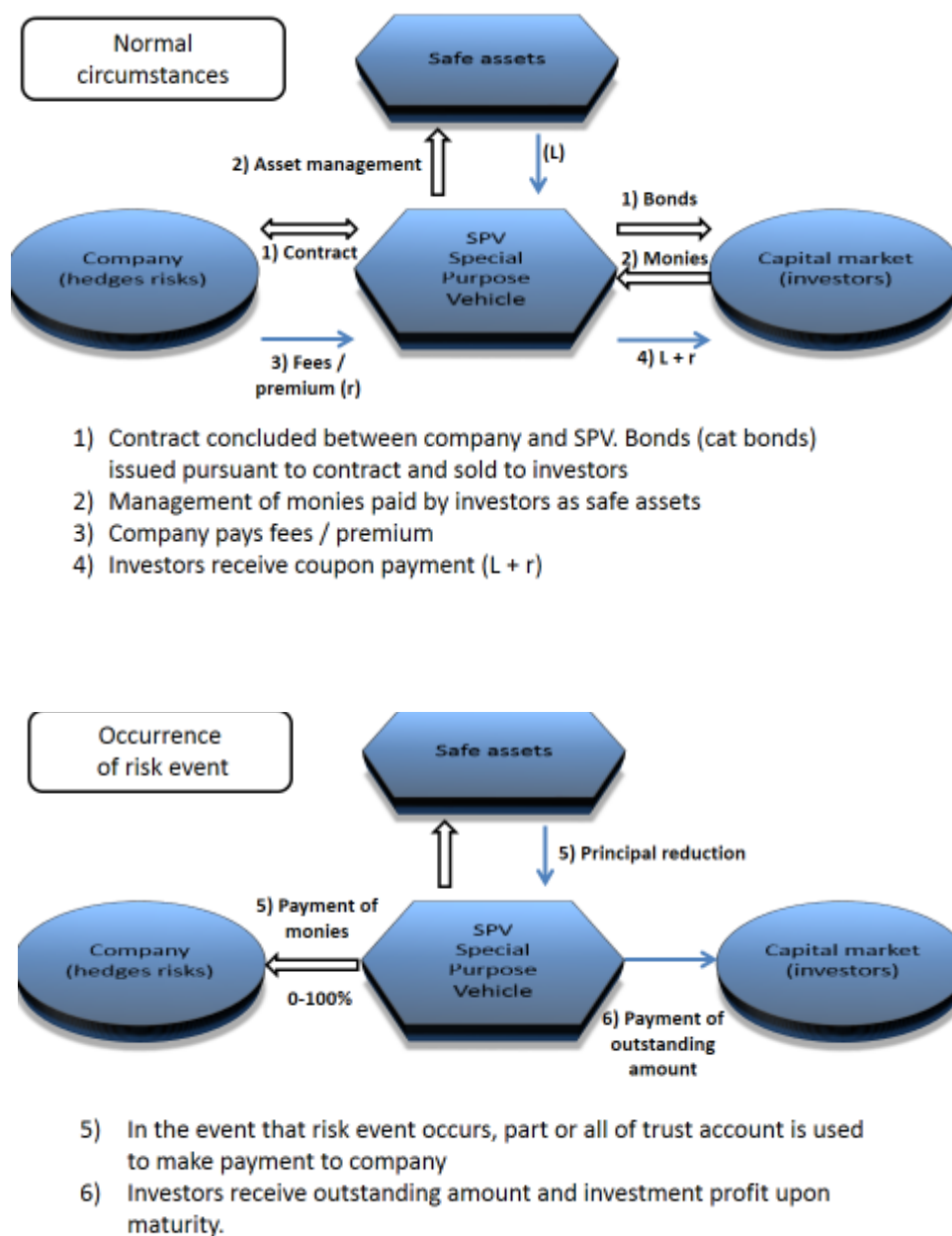


Figure 10 Scheme for risk securitization

In the U.S., in response to an indication by a major research on nuclear cat bonds that “because the information asymmetry will impair the optimization of financial resources, sufficient financial security amounts may not be successfully derived from the insurance market” (refer to the table below for the basic behavior of concerned parties and the consequences), a view was presented that the insurance market might undertake more insurance in the face of competition against

other financing methods.

Concerned parties	Basic behavior	Consequences
Nuclear operators	<ul style="list-style-type: none"> ● Underestimation of nuclear risk 	<ul style="list-style-type: none"> ➤ Avoidance of excessive insurance premiums
Insurance companies	<ul style="list-style-type: none"> ● Risk-avoiding behavior (assertion of limited insurance capacity) ● Difficulties in quantitative assessment of risk 	<ul style="list-style-type: none"> ➤ Joint undertakings ➤ Premiums determined with consideration of safety levels ➤ Limited capacity for insurance undertaking
Government	<ul style="list-style-type: none"> ● Difficulties in accurate assessment of nuclear risk ● Difficulties in grasping capacity of insurance companies 	<ul style="list-style-type: none"> ➤ Regulatory capture ➤ Provision of excessive support <ul style="list-style-type: none"> • Limitation of liability of nuclear operators • Government compensation (last resort) ➤ Inducement of excessive regulations

Source: provided by Noboru Utatsu; compiled based on Tyran, J.R. and Zweifel, P., "Environmental risk internalization through capital markets (ERICAM)

Table 14 Basic behaviors of concerned parties of nuclear liability insurance and their consequences

Committee members indicated that, nevertheless, if a nuclear catastrophe bond were to be formulated, substantially high interest rates would be required to make it appealing to investors. (Whereas U.S. nuclear liability insurance premiums are 0.3-0.5% of insured amounts and Japanese indemnity agreements are presumed to be 0.2%, natural catastrophe bond rates are 2-10%.) As aforementioned, given the requirement to ensure information transparency to investors and to disclose risk quantification and analysis processes, we would face the fundamental issue of not being able to present substantial reasons for setting certain interest rates because although the probability of an earthquake occurring can be provided based on accumulated research, nuclear accidents do not always occur as a consequence of earthquakes and tsunamis exceeding a given level. For example, it was suggested that it might be worth considering linking trigger events with the IAEA nuclear event scale, but while rates should be determined based on the

probability that an event will occur, it would be extremely difficult to present such probabilities. Although cat bonds are being issued in growing numbers, nuclear catastrophe bonds have not been issued anywhere in the world, presumably because the challenges described herein are yet to be overcome.

Further discussion is needed on the potential use of new risk financing schemes²⁰⁸ such as nuclear catastrophe bonds, in addition to employing the private insurance market, a mutual assistance scheme among operators as seen in the U.S. Price-Anderson Act and Government compensation, to address grave damages incurred by nuclear accidents.

(3) The problems of unlimited liability for operators

Many issues were raised regarding imposing unlimited liability upon TEPCO, a stock company with indirect limited liability as well as a general electricity utility with obligations to provide a stable supply of electricity under the Electric Business Act. TEPCO shoulders not only the compensation payments and related transaction costs such as the provision of human resources²⁰⁹, but also large costs associated with the decommissioning of the reactor which caused the accident and increased fuel costs required for alternative thermal power plants operating in place of nuclear power plants.

Considering the context in which Chairman Sakae Wagatsuma of the Expert Committee on Nuclear Disaster Compensation criticized the newly adopted legislation, which took an approach unique to Japan that operators would bear unlimited liability and that the Government would support them, saying that “the adopted law and the report of the Expert Committee stand on completely different concepts”, it is only natural that it would have many flaws. Committee members expressed that unlimited liability was inconsistent with the purpose of the Nuclear Compensation Act (the sound development of nuclear power business),

²⁰⁸ Discussion on new risk financing was written with reference to Kai, Toshitaka and Nobuhiro Kato. *Risk finance nyuumon (Introduction to risk financing)* Kinzai Institute for Financial Affairs, Inc., 2009)

²⁰⁹ As of April 1, 2013, TEPCO has allocated over 10,000 employees to damage compensation operations, www.tepco.co.jp/fukushima_hq/images/k130628_01-j.pdf

and raised concerns regarding increased public burden through electricity tariff raises and the impairment of stable power supply, as well as concerns regarding adverse impacts on financing electric power operations and on the stock market. However, fundamentally, “under modern civil law, a company is recognized its right to conduct unregulated activities, while naturally, it is simultaneously required to shoulder all of the costs incurred by the damages attributable to it.”²¹⁰ If the liability of the operators is to be limited, then Government compensation should be simultaneously considered as a package from the perspective of protecting victims. However, some Committee members mentioned that it would be difficult to prove the legitimacy of Government compensation for damages imposed upon a third party by a private company in its business operations. On the other hand, various literature contend that Government compensation should be acknowledged under the nuclear damage compensation scheme as well, given that compensation for damages in oil spills, which are also expected to require large payment amounts, takes a limited liability approach. Following a brief introduction of such literature, the issues to be considered if a scheme based on limited liability is to be adopted are discussed:

Literature in support of Government compensation:

- Yamamoto, Soji. *Kokusaihou ni okeru kiken sekinin shugi (Risk-based liability in international law)*, P16

Among the different aspects of strict liability, the ‘mixed liability,’ observed in regard to damages imposed upon third parties due to an accident at a nuclear facility or nuclear vessel, seeks to ensure the implementation of damage compensation by combining the operator’s civil liability for operations and the subsidiary or residual liability of the Government. This is because “only the Government is in the position to regulate the establishment and use of the facility as well as to compel operators to implement precautionary measures, and also because the Government has emphasized the protection and fostering

²¹⁰ Kanazawa, Yoshio. *Kojin no songai baishou sekinin ni taisuru kokka no hokanteki sayou* (The government’s complementary role in an individual’s liability for damages)

of the nuclear industry as national policy.

- Yamamoto, Soji. *Kokusaihou ni okeru kiken sekinin shugi (Risk-based liability in international law)*, P224

The limitation of liability is common, as with the case for civil liability, despite some differences regarding whether the manager is fully responsible for maintaining and providing guarantee or whether the licensing state or state in which the facility is located shares such responsibilities. However, the legal grounds and the legitimacy of setting such limitations on liability have been debated among scholars:

- i) The equity of imposing unlimited liability or limitations on the exclusion of liability
- ii) Compensation payments should not be shouldered in undue amounts that jeopardize the existence and development of an industrial facility
- iii) If the technology has reached a level that enables the general public to enjoy large benefits from its use, then the general public and society should share the risk burden to the extent benefits can be acknowledged.
- iv) Ceilings are indispensable conditions in setting guarantees.

- Chairman Sakae Wagatsuma of the Expert Committee on Nuclear Disaster Compensation. *Jurist* No.236, P17

The strict liability theory finds someone liable in the absence of negligence, but in relation with business, both horizontal (coverage) and vertical (monetary) limits are rather fundamental aspects of strict liability.

- *Nikkei Shimbun* editorial, June 17, 2011

The recent accident has revealed that once a nuclear accident occurs, compensation payments can surge to amounts unaffordable by a private company alone. The time has come to review the compensation system in preparation of the risk of accident. Japan's nuclear operations are implemented by listed companies in accordance with national policies to promote them. Assuming that nuclear operations will be continued as "a private business led by national policy," it has

become clear that the approach taken by the current Nuclear Compensation Act that operators are to bear unlimited liability is unreasonable. The stock market is currently under the strong influence of American and European investors, who represent almost 20 percent of TEPCO's stockholders. In only a few countries around the world, including Japan, Germany and Switzerland, electric power companies bear unlimited liability. If provisions were amended so that the Government would provide direct indemnification for damages in excess of a fixed amount, the lack of transparency regarding damage compensation which prevails in the market could be mitigated.

- Akira Morita, Professor of Doshisha University, NBL Vol. 956, P27

Even if the law provides for unlimited liability on the part of the operator, in reality, the Government inevitably assumes unlimited liability. As a result, TEPCO has unsoundly become a “compensation company led by national policy.” If this is the case, there is no significance in having electric power companies bear unlimited liability.

The issues that should be considered when adopting a limited liability scheme are discussed below.

i) The infringement of a victim's property rights

Concerns that limiting the operator's liability would constitute an infringement of the property rights of victimized parties were discussed upon the adoption of the Nuclear Compensation Act. Also, in the U.S. the constitutionality of limiting the nuclear operator's liability to a fixed amount was challenged in the Federal Supreme Court²¹¹. In the *Duke Power Co. v. Carolina Environmental Study Group* case, the trial court ruled that the ceiling set on liable amounts did not ensure adequate compensation for damages due to the accident and that it would generate a moral hazard in association with safety, as well as that it constituted a due-process violation and a violation of equity before the law. However, the Supreme Court unanimously ruled that the limitation on liability under the Price-Anderson Act was constitutional for the

²¹¹ Provided by Noboru Utatsu

undermentioned reasons²¹²:

- The imposition of a statutory limit on liability will encourage private industry participation and hence bears a rational relationship to Congress' concern for stimulating private industry's involvement in the production of nuclear electric energy.
- Even in the event compensation amounts of 560 million dollars is not sufficient enough to guarantee full indemnification of damages in all potential circumstances, this will not constitute grounds that limitation of liability is unreasonable or that it is a due-process violation.
- Hence, in view of the extremely remote risk of a major nuclear accident in which damages will exceed the statutory limit on liability and Congress' intention to implement all necessary and appropriate measures to for the indemnification of victims in the event of such an accident, Congress' decision to impose a statutory limit of 560 million dollars lies within its discretion and does not constitute a violation of due process.

As indicated in this ruling, even if a certain limit is set upon the liability of the operator, an efficient disaster compensation scheme incorporating Government measures as well would not directly limit the victims' property rights, but Government measures need to be clarified under a limited liability scheme.

The current Price-Anderson Act, as aforementioned, seeks to set limits on payment amounts than on liability. Hence, perhaps we should be more careful when discussing the constitutionality of the act with reference only to a court ruling based on a former version of the act. Nevertheless, whether adopting limited liability is a reasonable solution or not requires comprehensive judgment, taking into consideration the following aspects as well.

ii) Moral hazard in association with safety

There are concerns that a limitation on liability to a certain

²¹² Utatsu, Noboru. *Gendai genshiryokuhou no tenkai to houriron dai 2 han* (The development and legal theory of modern nuclear energy law, second edition) (Nihonhyouronsha, 2012)

amount will generate moral hazards in the operators' efforts to ensure safety²¹³.

However, this can be avoided by considering the nuclear compensation scheme to be a part of comprehensive risk management measures regarding nuclear operations, or establishing a link between the compensation scheme and safety regulations. The aforementioned mutual assistance program (ex-post insurance premium) under the Price-Anderson Act does not only effectively contribute to raising the financial security amount but also to improving safety levels through the encouragement of peer reviews among operators. The idea that a colleague's mistake would be one's own loss will naturally serve as a strong incentive for operators to engage in peer reviews. Some Committee members proposed that nuclear liability insurance rates, or general contribution amounts under the Facilitation Corporation Act, could be diversified based on probabilistic risk assessment (PRA) (economic incentive) - and the announcement of assessment results could be made mandatory (reputation incentive).

Setting meaningful differences in proportion to safety costs would be extremely difficult in terms of insurance rates and the mandatory disclosure of PRA results would require a simultaneous amendment to the Reactor Regulation Act. The NRC does not disclose insurance rates but the Institute of Nuclear Power Operations (INPO) conducts plant evaluations on safety which are presented on a scale of five and reported only to the CEOs of INPO members and Nuclear Electric Insurance Limited (NEIL). NEIL draws on the reports in determining insurance rates, setting a maximum difference of 10% between "Excellent" and "Good" and imposing a penalty on "Fair" ratings.

iii) Distribution plan for compensation funds

Limited liability would require prioritization of damages and the formulation of a distribution plan and as aforementioned in Part I Chapter 5, the U.S. Price-Anderson provides good reference. Section

²¹³ At a meeting of the House of Representatives Science and Technology Committee of the 145th Diet (March 16, 1999, asked about the safety of nuclear power plants in neighboring countries, Shigeru Aoe, Director General of the Science and Technology Agency's Atomic Energy Bureau stated, "Nuclear operators shall conduct operations with due care as nuclear operators shall bear full liability for damages suffered by victims."

170, paragraph O(1) is a detailed provision on the distribution plan for compensation funds and legal costs.

■ Plan for distribution of funds

Whenever the court determines upon the petition of any nuclear operator or other interested person that public liability from a single nuclear incident may exceed the applicable limit of liability, the following restrictions apply:

(1) Total payments made to victims as a result of such a nuclear incident shall not exceed 15 per centum of such limit of liability without the prior approval of the court;

(2) The payments in excess of 15 per centum of such limit of liability shall be executed in accordance with a plan of distribution which has been approved by the court

■ Legal costs

If the sum of public liability claims and legal costs authorized as reasonable and appropriate exceeds the maximum amount of financial protection, the licensee shall be charged no more than 5 percent of the maximum amount of standard deferred premium.

If resources for compensation are to be limited, then discussions on which damages would be prioritized are required. Drawing on the Price-Anderson Act and other overseas legislations, extensive rule-making on prioritizing personal damages and how to address late damages (the amount of funds to be reserved), etc. is called for.

iv) The reinstatement of operations ²¹⁴²¹⁵

Government (taxpayers) assumption of liabilities that should have

²¹⁴ Professor Toshihiko Kubo of Ritsumeikan University, College of Economics, provided much implication regarding the legal liquidation of electric power companies. Publications by Professor Kubo were also referred to: Genshiryoku songai baisho seido no kadai (The challenges of the nuclear compensation system) (*The Ritsumeikan Economic Review*, November 2011); “Genshiryoku hatsudensho jiko ni tomonau songai baishou saimu wo futan suru denryoku jigyousha no ariyou ni tsuite (The status quo of electric power companies shouldering nuclear liabilities due to the nuclear accident) (*Letters of Economic Science*, April 2012); “Genpatsu jiko ni tomonau songai baishou seikyuuken no kousei tetsuzuki ni okeru kyouseki saikenka ni tsutite (Conversion of claims for damages from a nuclear accident to common benefit claims in reorganization procedures)” (*Report on studies on tax and fiscal issues related to the great earthquake*, March 2013))

²¹⁵ *Kinyu Zaisei Jijo* (May, 30 2011) “Tokushu genpatsu baishou shien – kinyuu % jigyou saisei no shiten (Special report: support for nuclear damage compensatoin from the

been shouldered by operators, may call for consideration of what would be shouldered by the stakeholders of electric power companies, especially creditors including shareholders, bondholders and financial institutions. In May 2011, questioned by a journalist whether he believed that “the general public would accept the injection of public funds on the premises that TEPCO’s pre-earthquake debts would not be waived at all,” then Chief Cabinet Secretary Yukio Edano replied, “I don’t believe at all that that would be acceptable to Japanese public” and caused bank stock prices to decline by what was interpreted to be an implicit demand for debt waivers of financial institutions. The Japan Federation of Bar Association’s “Opinion paper on the framework for compensation of damages induced by the accident at the Fukushima Daiichi Nuclear Power Plant” (June 20, 2011) also advocates the legal liquidation of TEPCO,²¹⁶ which was also intensively discussed in the Diet when the Facilitation Corporation Act was legislated²¹⁷. Given calls for the clarification of stakeholder responsibility by means of legal liquidation, this solution would be compatible to a certain extent with assertions that the fundamental principle of capitalism should be observed²¹⁸. However, as introduced in Part II, Chapter 1, in the discussion about the events leading to the enactment of the Facilitation Corporation Act, a framework premised on the maintenance of TEPCO’s corporate structure (which would provide unlimited financial support through provision of funds or capital injection in order to avoid insolvency) was established, due to possible subordination of the victims’ right to claim compensation for damages to the bond-related lien or security interest in reorganization as well as to uncertainties regarding the costs required for compensation payment and decommissioning at the breakout of the accident that led to judgment

viewpoint of finance and business reorganization)” provides the perspectives of financial market specialists and their acknowledgement of the issue.

²¹⁶ www.nichibenren.or.jp/activity/document/opinion/year/2011/110617_2.html

²¹⁷ Proceedings of the Meeting of the Budget Meeting of the House of Representatives of the 177th Session of the Diet, Vol. 23 (May 16, 2011), comment by Committee member Yasuhisa Shiozaki, etc. *available at:* www.shugiin.go.jp/internet/itdb_kaigiroku.nsf/html/kaigiroku/001817720110516023.htm

²¹⁸ Saito, Makoto. *Genpatsu kiki no keizaigaku (The economics of risks related to nuclear power plants)* (Nihon Hyoronsha), Chapter 7 “Genpatsu to touseika no sekinin (Nuclear power plants and the responsibilities of investors)”, etc.

that reorganization under the Corporate Reorganization Act was substantively impossible. Legal liquidation is inherently inconsistent with the purpose of the Nuclear Compensation Act and the framework of the Electricity Business Act²¹⁹ and would undermine the credibility and stability of Japan's financial market. Furthermore, in addition to the challenges indicated above, the following issues may arise: i) securing an entity to assume liability for damage compensation; ii) the general public shouldering several trillions of yen including the 1 trillion yen in capital injection made into TEPCO by the Government; iii) possibly impairing the allocation of monies to supplying electricity and dealing with the accident; iv) increasing financing costs due to declines in creditability of other nuclear operators; and v) impacts on the morale of electric power supply and decommissioning operations.

However, some Committee members state that the framework of the Facilitation Corporation Act not being a versatile compensation scheme for all nuclear damage, as indicated as the fourth disadvantage of addressing nuclear accidents pursuant to the Facilitation Corporation Act, other options should also be pursued. The debate over the legal liquidation of electric power companies has been continued without full understanding of its advantages and disadvantages²²⁰, and according to a Committee member, “under the current Nuclear

²¹⁹ “Kinyuu shihon shijou ni totsujou hassei shita “hirenzoku” e no taishohou wo kangaeru (Consideration of ways to address sudden emergence of “discontinuity” in the financial capital market)” ‘Kinyu zaisei jijo, May 30 ,2011), contributed by Shigeru Yamamoto, Kowa Real Estate Investment Advisors Co., Ltd.

²²⁰ “Tembou hirakenu kokuyuu touden saihujou suru houteki seiriron (State-owned TEPCO makes no progress: legal liquidation revisited)” (The Nikkei Shimbun, November 1, 2012), *available at*: www.nikkei.com/article/DGXNASFP29001_Z21C12A0000000/

“Touden hatan kaihi ga fukou no hajimari (Avoidance of TEPCO bankruptcy, the beginning of misfortune)” (The Asahi Shimbun, Opinion column, September 27, 2013), contribution by Shuya Nomura, Professor, Graduate School of Law, Chuo University
 Comment by Diet member Yoshimi Watanabe at the Plenary Session of the House of Representatives on October 17, 2013. “The reason for delays in response to the radiation-tainted water issue lies in the tepid nationalization of TEPCO instead of allowing its bankruptcy. TEPCO should be legally liquidated so that shareholders and creditors can assume responsibility.” It should be noted that in response to Diet member Watanabe, Prime Minister Shinzo Abe replied, “If TEPCO were to be legally liquidated, we would risk not being able to secure a framework to provide compensation to victims and an electricity supply comparable to that serviced by TEPCO. TEPCO should continue to unfailingly implement damage compensation, proceed with decommissioning measures, address of contaminated water-related issues, and stably provide electricity as a private company.”

Compensation Act, victims are held hostage and the reinstatement of operations cannot even be put on the table for consideration.” The Committee also discussed the challenges and potential countermeasures involved with the alternative option of the legal liquidation of electric power companies, in particular the application of corporate reorganization procedures (which embrace, compared to civil reorganization procedures, stronger involvement of the court, and hence is more in line with public demand for fair procedures). Challenges and proposed solutions are summarized below in terms of its relation to the damage compensation scheme and business management:

[Challenges in relation to the damage compensation scheme]

- i) A victim’s right to claim compensation for damages is addressed as a rehabilitation claim (unsecured claim), and is therefore subordinate to bonds (electric power bonds are secured by general mortgage pursuant to the Electricity Business Act)²²¹ and other security interest in reorganization. (possible large reductions in compensation payment amounts)
- ii) General mortgage is acknowledged for borrowed indebtedness to the Development Bank of Japan (DBJ)²²², allowing payment in preference to other creditors (Act on Security for Loans from the Development Bank of Japan to Electric Utility Corporations, Article 1)
- iii) Repayments are not made until the reorganization plan is accepted (which usually takes 6 -12 months from the initiation of rehabilitation procedure)
- iv) Negotiations to determine a victim’s claim for damages must be conducted individually with the electric power company (trustee) in question which leads to large burdens for both the victim and trustee.

²²¹ As of the end of fiscal year 2010, TEPCO’s corporate bonds issued stood at approximately 4.9 trillion yen, representing 8% of outstanding straight bonds

²²² As of March 2011, TEPCO’s debts outstanding to DBJ stood at 351.1 billion yen.

[Challenges in terms of business operations]

- i) As business-related costs required for fuel and the termination of the nuclear accident will be addressed as rehabilitation claims, large reductions in these items will be called for in the reorganization plan, therefore impairing the procurement of fuel and necessary materials and equipment, therefore complicating the provision of a stable electricity supply and the termination of the accident.
- ii) Given the need for major capital investment, an electric power company generally has a high interest-bearing debt ratio²²³, but will be faced with financing difficulties upon implementing its reorganization plan.

Regarding these challenges, the undermentioned proposals and relevant concerns were presented at Committee meetings.

Proposal 1: Potential treatment of victims' right to seek damage compensation as a common benefit claim²²⁴ pursuant to permission of the court.

(Concerns)

- Can the requirements for court permission that such treatment is indispensable for reorganization and that the equity principle is not undermined be met?
- As no order of preference is determined among common benefit claims, would it not be necessary to grant rights to receive preferential payment²²⁵ in the reorganization procedures, in order

²²³ The electric power business generally requires large capital investment, although capital investment amounts did not exceed depreciation costs in recent years as a result of partial deregulation measures and stagnant demand. The average interest-bearing debt ratio to total assets of the nine electric power companies was 57.0% in the financial results for the fiscal year ending in March 2013.

²²⁴ A claim regarding the costs required for rehabilitation procedures and costs indispensable to the continuity of operations, which are incurred after bankruptcy proceedings based on Civil Rehabilitation Law are initiated. Even in the event of liabilities which occurred previous to the decision of initiation, costs indispensable to the continuity of operations can be common benefit claims, provided permission is obtained from the court and supervisor. Common benefit claims are categorized as claims that are entitled to preferential receipt of reimbursement and are of the same rank as priority bankruptcy claims. (excerpt from: www.exbuzzwords.com/static/keyword_4894.html)

²²⁵ The need for determining precedence among common benefit claims in the form of

to avoid conflict with legal common benefit claims such as tax collection rights?

Proposal 2: Fund procurement would still be possible even if the “general mortgage clause”, which secures bonds with blanket mortgage, were to be deleted.

(Concerns)

- In order to avoid confusion in the corporate bond market, the rights granted to outstanding bonds under existing systems should take precedence; and therefore this option would not be applicable in addressing the TEPCO Fukushima accident.
- It would be technically possible to issue new bonds without general mortgage, but the widening of spreads observed after the accident despite an effective “general mortgage clause” raises concerns over how to mitigate the negative impacts of higher financing costs and impaired stability in procuring funds.
- The same can be said regarding loans from DBJ.

As discussed herein, some Committee members proposed that a flexible approach taken by the court or amendments to the law could solve some challenges while others presented their concerns about such proposals.

Not only is it questionable whether such “flexible approaches” and special provisions are consistent with the call for stable legal order or with the purpose of the Corporate Rehabilitation Act, it is unlikely that the monies for damage compensation could be secured in full even if the right to claim damages were granted preference²²⁶, and hence, the protection of victimized parties could be jeopardized. Insufficient victim protection might arouse deep concerns among the residents of areas hosting other nuclear facilities, thereby complicating the restarting of nuclear power plants. Given the need to expand on the concept of common benefit claims in order to secure current operating funds,

“preferential common benefit claims” was indicated.

²²⁶ Takagi, Shinjiro. “Moshi kaisha kousei de kaiketsu suru to shitara (If resolution was sought through corporate reorganization)” (Kinyuu zaisei jijo, May 30, 2011) also discusses the possibility that the right to claim damages could be partially curtailed

other concerns could be raised that the equity principle provided for in the Corporate Rehabilitation Act and the fairness of reorganization proceedings may not be maintained²²⁷.

Problems related to general mortgages will have a large impact on not only nuclear business but on future electric power business as a whole. Requiring massive capital investment, electric power businesses indispensably need to procure large amounts of external funds. In the times of capital shortage after the Second World War, general mortgage was a requirement in enabling financing from overseas. However, granted tariff regulations based on FDC pricing and regional monopoly, general electric utilities essentially enjoyed a stable financing scheme which were supposed to dismiss fears of bankruptcy. Therefore, it is not clear how effectively general mortgages actually served to reduce financing costs.²²⁸

The importance of general mortgage is likely to be acknowledged as advancements are made in the deregulation of the electric power sector. If emerging electric power companies and the general electric power utilities are to stand on an equal footing in the abolishment of general mortgages, then financing costs for investment in electric power equipment are bound to increase and could be added on electricity

²²⁷ Yamauchi, Hiroataka. "Touden wo dou subekika (jou) (What should we do with TEPCO? (Part1))" (*The Nikkei Shimbun*, "Keizai kyoushitsu" column, September 24, 2013) also states that application of the Corporate Rehabilitation Act would have few advantages. There are, however, opinions that the Corporate Rehabilitation Act should be applied. Takeo Hoshi, Professor at the University of California, San Diego, stated in "Boukoku no Touden kyusai (TEPCO relief plans of a ruined country)" (*Kinyu Keizai Jijo*, May 30, 2011), that under the Corporate Rehabilitation Act "even if reorganization claims are preferential, they are equally subject to alternations under the reorganization plan and may also be bundled in the same group of claims as general reorganization claims if acknowledged appropriate from the perspectives of fairness and equity," and "the acceptance of a reorganization plan) should be based on consideration of the precedence of claims but does not require their strict application." Also, indicating that the indemnification amounts paid to victims could be reduced because "victims are also creditors and there is no reason for them to be granted preference to other credits under the reorganization plan", Hoshi states that "in the event such reductions are too large from social fairness perspectives, the Government could be responsible for paying the difference."

²²⁸ Takahashi, Yasufumi. *Kaisetsu genshiryoku songai baishou shien kikou hou* (Guide to the Nuclear Damage Compensation Facilitation Act) (Shojihomu, 2012), p68 states that "the total amount of outstanding general mortgage bonds are roughly 90% of electric power companies' operating costs, which means that although interest rate increases are not always reflected upon electricity tariffs by 100%, if they were to be fully reflected on tariffs, then a 100bp (1%) raise in interest rates would induce a 0.9% increase in electricity tariffs."

tariffs. If nuclear power plants are determined utility power plants instead of merchant power plants in future electric power system reform debates, then institutional measures bearing the same effect as general mortgages should be considered in terms of financing.

The legal liquidation of an electric utility involves various issues which are not easily resolved. Options beyond the framework of the Facilitation Corporation Act should be continually studied.

v) Inhibitory effect on the entry of foreign capital in nuclear operations

The fact that private companies bear unlimited liability may have had an inhibitory effect on the entry of foreign capital into the Japanese electric power market. An indirect effect of the Nuclear Compensation Act, this may change with the introduction of operators' limited liability (or a ceiling on the financial security amount), in which case the simultaneous progress of the electric power system reform may diversify the business structure of nuclear operations, potentially inviting overseas investment. This may require the reconsideration of regulations regarding direct domestic investment under the Foreign Exchange and Foreign Trade Act ("Foreign Exchange Act") as well as a convincing explanation if foreign capital is to be regulated²²⁹, but these challenges will not be discussed further herein.

(4) Confusion regarding the liability of operators

As aforementioned in Part II, Chapter 1, the TEPCO Fukushima accident immediately aroused intense debate on whether TEPCO would be excluded from liability pursuant to the exceptional clause of Section 3, paragraph 1 of the Nuclear Compensation Act. This issue was brought up at Committee meetings as well, responded by views that some form of amendment was required for prompt victim relief, now that it has become clear that a certain degree of judgment is called for

²²⁹ Direct domestic investment regulations pursuant to the Foreign Exchange Act are well presented in: www.enecho.meti.go.jp/topics/080416/04_sanko.pdf (The Agency of Energy and Natural Resources, April 2008)

Material regarding the termination order to The Children's Investment Fund (TCI) regarding its additional acquisition of J-Power stock can be found at: www.mof.go.jp/international_policy/gaitame_kawase/gaitame/recent_revised/tci20080513-03.htm and www.rieti.go.jp/users/shiraishi-shigeaki/serial/008.html

in a post-nuclear accident state of extreme confusion. Concrete solutions would be to stipulate more stringent requirements for exclusion from liability or to eliminate the clause. With regard to the former option, Committee members pointed out that it was questionable to what extent it would actually be possible to write into law, more explicit and stringent requirements for exclusion from liability²³⁰ and to what extent an amendment to the provision could clarify the requirements, as the application of a provision on exclusion from liability is dependent on the interpretation or judgment of the court.

As for the latter option, eliminating the clause, debate on what would constitute an “exceptionally grave natural disaster” has been continued since the legislation of the Nuclear Compensation Act, as mentioned in the discussion on the features of Japan’s Nuclear Compensation Act in Part I, Chapter 4. It should be noted that the clause was inserted for the purpose of maintaining balance, as it would be too severe to always hold the operator liable under all circumstances. Of the various interpretations of what an “exceptionally grave natural disaster” is, some major examples are provided below:

- Recommendations by the Expert Committee on Nuclear Disaster Compensation (December 12, 1959)²³¹

Nuclear operators shall bear unlimited liability for damages induced by nuclear accidents and shall be excluded from liability only on extremely special occasions, However, this special occasion does not apply to all cases of “force majeure” but should be limited to especially strong cases of force majeure. Therefore, efforts should preferably be made to precisely express this substance by using a phrase such as “exceptional and grave natural or social disaster.”

²³⁰ As aforementioned, in a symposium on nuclear disaster compensation, Eiichi Hoshino, an associate professor at the University of Tokyo indicated that the advantages of providing more detailed examples of events would be that judgment would be facilitated, conflict could be avoided to some extent in the event of accident, and as a result, compensation payment could be made more promptly, but also made note of the scientifically technological and legally technical obstacles in doing so.

²³¹ Recommendations by the Expert Committee on Nuclear Disaster Compensation, *available at*: www.aec.go.jp/jicst/NC/about/ugoki/geppou/V04/N12/19591206V04N12.html

- White Paper on Nuclear Energy (1959-1960)²³²

The liability of a nuclear operator is premised on the existence of a causal relationship, but when damage occurs due to force majeure, the causal relationship is interrupted, thereby excluding the nuclear operator from liability. However, given the many unknown factors of nuclear business, “force majeure” could be easily acknowledged, arousing fear among victims; and therefore, nuclear operators shall be excluded from liability only when the damage is the result of an exceptionally grave natural disaster or insurrection, such as an earthquake which causes damages exceeding those of the Great Kanto Earthquake or armed attack from overseas.

The reason for having nuclear operators bear almost absolute unlimited liability is, needless to say, that nuclear operations use state-of-the-art science and technology which encompass many elements yet to be known; and therefore, having victims prove the nuclear operator’s intention or negligence, or a defect of the facility would undermine victim protection.

- Akio, Takeuchi, Genshiryoku songai nihou no gaiyou (Outline of Two Laws Concerning Nuclear Damage) (*Jurist*236, October 15, 1961) ²³³

A “natural disaster” or “insurrection” refers to extremely limited “exceptional” and “grave” events for which preventive measures cannot be taken using currently available technology unless economic efficiency is ignored. [...] Whether or not a “natural disaster” or “insurrection” is “exceptionally grave” determines whether victims will be fully compensated for the damages suffered or whether they will only receive relief. In this sense, the exceptional clause of Section 3, paragraph 1 is almost equivalent to the recommendations but has nevertheless come to represent an extremely large meaning completely different from the concept of the recommendation, which requires us all the more to make even more limited judgment in relation with

²³² White Paper on Nuclear Energy (1959-1960), Chapter 12, *available at*: www.aec.go.jp/jicst/NC/about/hakusho/wp1959/sb1202.htm

²³³ *Jurist* No.236, *available at*: tneihei.tumblr.com/post/5661848585/36-10-15-31-236

Sections 16 and 17, including whether an event is a “natural, social disaster” that accompanies widespread and grave damage for which it is completely impossible to compensate victims suffering nuclear damage.

- Atomic Energy Bureau, Science and Technology Agency ed. *Genshiryoku baishou seido (The nuclear compensation system)*, (Tsusho sangyou tsushinsha, 1980), P52

It seeks to limit exclusion from liability to extremely rare circumstances (such as those undermentioned).

It refers to major earthquakes, major volcanic eruptions and major typhoons and floods of scales unprecedented in Japan’s history. For example, the Great Kanto Earthquake is a major earthquake but not an extremely grave one, and applicable earthquakes must be substantially larger.

An insurrection must be a social incident which is equivalent in both quality and scale to a grave natural disaster. War, armed attack from overseas, and civil war would be covered, but local riots and uprisings would not be covered.

- Proceedings of the Promotion of Science and Technology and Innovation Special Committee of the House of Representatives of the 34th Session of the Diet, (May 18, 1960), comment by Yasuhiro Nakasone, Director-General, Agency of Science and Technology
A major earthquake at least triple the scale of the Great Kanto Earthquake

- Proceedings of the Promotion of Science and Technology and Innovation Special Committee of the House of Representatives of the 38th Session of the Diet, No.9 (April 12, 1961), Bunkichi Yuzuriha, Office of the Prime Minister clerk, Director General, Atomic Energy Bureau, Science and Technology Agency
An earthquake, twofold or threefold of the scale of the Great Kanto Earthquake – one that far exceeds that scale.

- House of Representatives Science and Technology Committee of the

145th Diet Session (March 16, 1999), comment made by Shigeru Aoe, Director General, Atomic Energy Bureau, Science and Technology Agency

-For example, the recent Great Hanshin-Awaji Earthquake would not be considered an extraordinary situation.

-The reference made to an event triple the magnitude of the Great Kanto Earthquake in the recommendations made at the time of enactment are understood to be an example of an event that would cause an extremely extraordinary situation.

The experiences of the Fukushima accident revealed that “the comprehensive and flexible phrase ‘exceptionally grave natural disaster’” (Akio Takeuchi, *Jurist* No.236) could ignite confusion. It has also been indicated that even if operators were to be exempted from liability, it would be impossible to conclude that victims would be denied indemnification, and hence an established Government compensation scheme would have to be available; however, given the ambiguity of the Government’s role, it is structurally difficult under Japan’s Nuclear Compensation Act to exempt operators from liability.²³⁴

In order to overcome these challenges, the Committee collected information on German and Swiss nuclear compensation laws, both of which do not contain any clauses for exclusion from liability²³⁵. A summary of the current status of nuclear power operations and the legal system for compensation for nuclear damages in Switzerland, whose scheme of combining liability insurance and government compensation is simpler and clearer than that of Germany, is provided below.

Switzerland has five operating nuclear reactors, which collectively

²³⁴ Tanabe, Tomoyuki, M. Maruyama, Fukushima Daiichi Genshiryoku Hatsudensho Jiko ga teikishita waga kuni no genshiryoku songai seido no kadai to sono kokufuku ni muketa seido kaikaku no houkousei (The issues concerning Japan’s compensation system for nuclear damages raised by the accident at Fukushima Daiichi Nuclear Power Plant and the direction of system reforms to overcome the challenges) (Central Research Institute of Electric Power Industry, 2012)

²³⁵ Based on information provided by Noboru Utatsu and material published by JAIF, available at: www.jaif.or.jp/ja/seisaku/genbai/genbaihou_series43.html ; Swiss info: www.swissinfo.ch/jpn/detail/content.html?cid=34224944

generate approximately 40 percent of its electricity. After the TEPCO Fukushima accident, in May 2011, it decided on a “nuclear power phase-out” policy under which it will phase-out the five reactors currently in operation and ban construction of and replacement with new reactors. In December 2011, the Swiss Federal Assembly announced the “2050 Energy Strategy,” its long-term energy plan, but as final decisions are very likely to be made by national referendum, several years are expected to be required before the policy direction is determined²³⁶. There have been no reports as of yet that the Swiss Act on Nuclear Third Party Liability (LRCN) which stipulates nuclear damage compensation has been amended.

The Swiss nuclear damage indemnification act does not allow for the operator’s exclusion from liability in any event (except when it has been proven that the victim intentionally created the damage). It also stipulates that operators bear unlimited liability. However, private liability insurance covers grave disasters of an exceptional character and unpreventable nuclear damage due to terrorism. Insurance amounts are limited (to 500 million Swiss francs), and damage in excess of 500 million Swiss francs and those due to incidents which cannot be addressed by private liability insurance (wars, etc.) are indemnified by the federal government for amounts up to 1 billion Swiss francs (indemnity fees are collected and reserved in a nuclear damage fund).

It should be noted that the Swiss Act on Nuclear Third Party Liability stipulates in Chapter 5 how major occurrences shall be addressed. Section 29 provides that in the event of a major occurrence, in principle, if damages are in excess of the financial resources available through financial protection and government compensation, then the Federal Assembly shall establish an indemnity scheme and determine the general principles for compensation of the injured parties by Federal Order. Furthermore, Section 30 stipulates that the Federal Council is empowered to make modifications including the levying of retrospective premiums on policy-holders. Information on the Swiss system was provided as an example of combining private liability

²³⁶ JETRO “Shinkyokumen wo mukaeru Swiss no energy seisaku (Swiss energy policy welcomes a new phase)” (*JETRO Euro Trend*, May 2012)

insurance and government compensation .

Relevant provisions from the Swiss Act on Nuclear Third Party Liability²³⁷ and an illustration of its structure are provided below:

Chapter II (Third Party Liability)

Section 3 (Principle)

1. The operator of a nuclear installation shall be liable without limit for nuclear damage caused by nuclear substances in his installation,

Section 5 (Exoneration)

1. The operator of nuclear installation or the holder of a transport license shall be relieved liability if he proves that the injured party caused the damage intentionally.
2. He may be totally or partially relieved of liability if he proves that injured caused the damages by gross negligence.

Section 11 (Limitation of insurance coverage)

1. Any person liable under this Act shall, in order to cover the insurable risk, take out insurance with an insurer authorized to operate in Switzerland for at least Sw.Frs. 300 million per nuclear installation, plus at least Sw.Frs 30 million for interest payable and procedural costs in proportion to the insurance payments. For each transit of nuclear substances through Switzerland the amount to be insured shall be at least Sw.Frs 50 million plus at least Sw.Frs. 5 million for interest payable and procedural costs.
3. The Federal Council shall define the risks that private insurers may exclude from cover irrespective of injured parties.

*According to the Federal Nuclear Energy Liability Ordinance (ORCN), private insurance shall not cover the following damages. The injured party may not bring direct action against the insurer for damages not covered by private insurance:

- (1) Nuclear damage due to extraordinary natural events or war and nuclear damage amounting to Sw.Frs 500 million to 1 billion caused by unpreventable terrorist actions
- (2) Damage for which no proceedings have been brought within a period of ten years following the occurrence having caused the damage or consequences with long-term impacts

²³⁷ Derived from the JAIF website: www.jaif.or.jp/melmag_db/2012/1126genbai.pdf

- (3) Damage for which no proceedings have been brought within a period of twenty years since the date of loss, theft, disposal or termination of possession of nuclear substances

Part2 Confederation

Section 12 (Limitation of coverage by Confederation)

The Confederation shall cover the person liable for nuclear damage up to a total of SW.Frs 1000 million per nuclear installation or transport operation, plus Sw.Frs 100 million for interest payable and procedural costs, in so far as such damage exceeds the cover granted by private insurance or is excluded therefrom (Section 11 paragraph 3).

Section 13 (Deferred damage)

The Confederation shall cover, up to the amount specified in Section 12, nuclear damage for which compensation can no longer be claimed from the person liable because the thirty-year extinction period has run out (Section 10 paragraph 1).

Section 14 (Contributions by the persons liable)

1. For the purpose of covering its obligations under Sections 12 and 13 the Confederation shall levy contributions from the operators of nuclear installations and the holders of transport licenses. Such contributions shall be calculated so as to comply as far as possible with the principle of covering costs.
2. The Federal Council shall determine the amount of the contributions.
3. The authority designated by the Federal Council shall calculates and levy the contributions. Its decision may be challenged in the Federal Count by way of proceedings under administrative law.

Section 15 (Nuclear damage fund)

The Confederation shall establish a fund into which shall be paid the contributions collected under Section 14 as well as the interest they earn.

*According to the Federal Nuclear Energy Liability Ordinance (ORCN), the outline of the fund is as follows (ORCN Sections 8 and 9):

- (1) The Confederation shall establish a fund for nuclear damage compensation which is not legally separate entity but is financially independent. The fund shall be managed by the Federal Department of the Environment, Transport, Energy and Communications (DETEC)

- (2) The fund shall be procured from the following: a. contributions by the persons liable; b. interest earned by the fund (Section 10, paragraph 1); c. right of recourse pursuant to Section 20
- (3) The fund shall be used for the following expenditures: a. government cover pursuant to Sections 12 and 13; b. administrative costs (disaster management costs); c. provisional payments by the fund
- (4) Revenue and expenditures of the fund shall not be incorporated in to the budget of the Confederation

Chapter 5 Major occurrences

Section 29 (Principles for major occurrences)

1. If there are grounds for anticipating that the financial resources of the person liable, the private insurer and the Confederation, available for covering the damage, will not be sufficient to satisfy all claims (major occurrence), the Federal Assembly shall establish an indemnity scheme by means of a Federal Order of general application, not subject to referendum. This Order may cancel the right of recourse against the person liable of all public and private insurers and sickness insurance funds, subject to the provisions of Section 20. If necessary, the Confederation may pay additional contributions in respect of damage not otherwise covered.
2. The Order shall determine the general principles for compensation of the injured parties in order to ensure the equitable distribution of all available funds. In so doing it may derogate from the provisions of this Act.
3. The Federal Assembly may entrust a special independent body with the implementation of the indemnity scheme. Appeals to the Federal Court against decision of this body shall be permissible.
4. The Federal Council shall take any provisional measures that may be necessary.

Section 30 (Modification of insurance premiums, retrospective premiums)

1. Where a state of emergency is created by a major occurrence the Federal Council is empowered to issue regulations relating to private insurance on:
 - a) the modification of the insurers' liability;
 - b) the levying of retrospective premiums on policy-holders;
 - c) the deduction of such retrospective premiums from insurance payments

2. This power shall not extend to the insurance for third party liability required to be taken out by virtue of Sections 11, 12 and 18. The Federal Council may take corresponding measures in relation to social insurance and third party liability insurance.

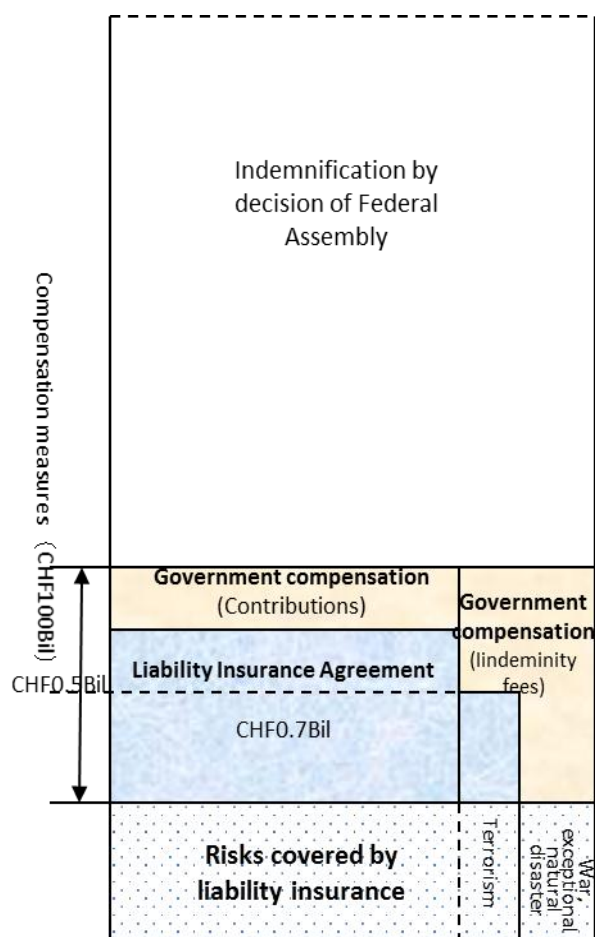


Figure 11 Structure of the Swiss Act on Nuclear Third Party Liability

(5) Issues regarding exclusive liability of the operator

Section 4 of the Nuclear Compensation Act stipulates that the operator is solely liable for nuclear damages. Stipulated in international agreements, including both the Paris Convention and Vienna Convention, exclusive liability of the operator is an established principle, and it would not be a realistic choice for Japan to alter it, given the possibility that Japan might seek participation in

international frameworks on nuclear damage compensation.

However, examining the Fukushima Nuclear Accident Investigation Report, questions have been raised regarding the exclusive concentration of all liabilities on the operator, as the installation of emergency diesel generators in the basement and other baffling points regarding the design of the nuclear power plant have been discovered. Committee members stated that although it would not be realistic to hold manufacturers (suppliers) liable for damages, they should at least be required to cooperate in dealing with an accident or to provide information.

As aforementioned in Part I Chapter 3, the U.S. Price-Anderson Act does not legally stipulate the principle of exclusive liability on the operator, but by including all parties which have any possibility of bearing liabilities as joint insureds in the insurance agreement signed by nuclear operators, liabilities are in effect exclusively centered upon licensed nuclear operators (licensees). With plans to expand on nuclear power generation, India enacted its Civil Liability for Nuclear Damage Act in September 2010, providing for the operator's right of recourse (Section 17) and for the act to be additional to any other law stipulating the operator's right to claim damages (Section 46)²³⁸. India has recently signed the Convention on Supplementary Compensation for Nuclear Damage (CSC) and has taken it up for ratification in Parliament but has yet to clarify how it will seek consistency between its Civil Liability for Nuclear Damage Act and the CSC, which is fundamentally based on

²³⁸ The Indian Civil Liability for Nuclear Damage Act stipulates that “The operator of the nuclear installation, after paying the compensation for nuclear damage in accordance with section 6, shall have a right of recourse where” (Section 17), “the nuclear incident has resulted as a consequence of an act of supplier or his employee, which includes supply of equipment or material with patent or latent defects of sub-standard services” (Section 17, paragraph (b)), significantly relaxing the principle of “exclusive liability”. India adopted such rules for nuclear damage compensation which could be understood to be a “deviation” from international standards in Parliament, presumably because the opposition party was against the bill on grounds that the compensation for damages caused by the 1984 toxic chemical gas spill from a chemical plant in Bhopal, India were yet to be paid by the operator's parent company, the U.S.'s Union Carbide Corporation. Tanabe, Tomoyuki “‘All-Japan’ ni yoru genshiryoku kokusai tenkai no kadai – gyoushubetsu kokusai tenkai senryaku option ni motozuku mondaiten no chuuchutsu to kaizen teian- (Some Problems of Recent “All Japan” Strategy for Nuclear Power Exports - Identification of its Problems and a Proposal for Improvement based on International Development Strategies of the major three Categories of Businesses constituting Nuclear Power Industry -)” (CRIEPI Research Report: Y10033, 2011) p37, *available at*: criepi.denken.or.jp/jp/kenkikaku/report/detail/Y10033.html

the principle of exclusive liability of the nuclear operator²³⁹.

The relationship between the principle of exclusive liability and the State Redress Act should also be addressed. As aforementioned in the discussion about the context in which the Facilitation Corporation Act was enacted, the potential application of claims for state redress should also be considered, in light of the fact that operations have been highly under Government control and that the Nuclear Emergency Response Headquarters and other government bodies have been responsible for announcing evacuation instructions, establishing food safety standards and implementing shipping restrictions after the accident²⁴⁰.

The State Redress Act, Article 1, paragraph 1 stipulates that when a public officer who exercises the public authority of the State or of a public entity has, in the course of his/her duties, unlawfully inflicted damage on another person intentionally or negligently, the State or public entity shall assume the responsibility to compensate therefor. In past pollution lawsuits, the court has ruled that when failure to execute authority exceeds acceptable limits and is significantly unreasonable, such failure is acknowledged to be illegal²⁴¹; and given the role that the Government has played in nuclear safety regulation and the fact that no breach of safety regulations have been found to date on the part of TEPCO, it would appear to be reasonable to question the Government's responsibility for not having appropriately executed its authority. The

²³⁹ In early September 2013, India's Goolam Essaji Vahanvati, Attorney-General, said, "it is for the operator of a nuclear plant in India to decide whether it wished to exercise the 'right of recourse,'" presenting the legal interpretation that the product liability principle, which contradicted the principle of "exclusive liability" precluded by judgment of the operator ("Gaikoku kigyō no genpatsu 'suishin' indo, kensetsu e no houkaishaku henkou – nichiiin kyōtei ni oikaze (India to "promote" nuclear power plants from overseas manufacturers: alteration of legal interpretation with view to construction – a boost to Japan-India Nuclear Cooperation Agreement)" (*The Nikkei Shimbun online*, October 13, 2013). It should be noted that letting Indian nuclear operators decide whether or not apply the principle of concentrated liability does not determine the risk allocation between the operator and manufacturer.

²⁴⁰ Hayakawa, Kazuhiro "Genshiryoku songai to kokka baishō (Nuclear damage and state redress)" (Omiya Law Review No. 9), *available at*: www.omiyalaw.ac.jp/library/lawreview/No.9/No.9-hayakawa.pdf was referred to regarding the relationship between state redress.

²⁴¹ ruling of the Supreme Court on April 27, 2004, Minshu Vol. 58, No.4, p1032 (Chikuho region pneumoconiosis case); ruling of the Supreme Court on October 15, 2004, Minshu Vol.58, No.7, p1802 (Kansai region Minamata disease case)

issue then would be whether or not the principle of exclusive liability, which is stipulated in Section 4 of the Nuclear Compensation Act, exempts the Government from liability for damages.

As aforementioned in the discussion regarding the context in which Japan's nuclear compensation system was established, upon receiving technological transfer from the U.S. and the U.K., Japan had to guarantee that foreign suppliers (manufacturers and suppliers)²⁴² would not bear nuclear damage liabilities. It is presumed that the Japanese government was also required to free victims of the burden on identifying the parties liable for damage compensation and to prevent insurance segmentation.

Therefore, the principle of exclusive liability under the Nuclear Compensation Act is generally interpreted not to exclude the possibility of claiming state redress²⁴³ and few contend that the application of the State Redress Act should be denied. For example, Professor Tadashi Otsuka of Waseda University says, "It should be noted that the issue of whether the Government is liable for damages is a separate issue [from the issue of applying the exceptional clause to TEPCO]. Acknowledging state liability would constitute joint tort or conflicting torts between TEPCO and the Government, possibly arousing questions of how Section 4 (exclusive liability of the nuclear operator) of the Nuclear Compensation Act would be applied. However, in light of the context in which the provision was established, it intends to exclude manufacturers from liability and is unlikely to exclude the liability of the State."²⁴⁴ Furthermore, questioned whether a victim of a nuclear

²⁴² Morishima, Akio. *Genshiryoku jiko no higaisha kyusai* (3) – songaibaisho to hosho (Victim relief in nuclear accidents (3): indemnification and compensation for damages) (Toki no Hourei, Vol. 1888) indicates that U.S. - later U.K. – suppliers of nuclear technology and material strongly demanded the establishment of a system under which they would not bear any liability for nuclear damages as a condition for their services.

²⁴³ Takahashi, Yasufumi. *Kaisetsu genshiryoku songai baishou shien kikou hou* (Guide to the Nuclear Damage Compensation Facilitation Act) (Shojihomu, 2012) p28- indicates that it is appropriate to basically assume that the State Redress Act can be applied (that the Government is not excluded from liability). References that deny the application of the State Redress Law include: Atomic Energy Bureau, Science and Technology Agency ed. *Genshiryoku baishou seido (Nuclear Compensation System)*, (Tsusho sangyoutsushinsha, 1980), P52

²⁴⁴ Takahashi, Shigeru and Tadashi Otsuka. *Shinsai, genpatsu jiko to kankyohou* (Earthquake-induced disaster, nuclear accident and environmental law) (Minjihokenkyukai, 2013), p71

accident could claim compensation from the Government based on Article 1, paragraph 1 of the State Redress Act at a meeting of the House of Councilors Special Committee on Reconstruction from the Great East Japan Earthquake of the 180th Session of the Diet, Masaharu Kondo, Director-General of the First Department at the Cabinet Legislation Bureau responded that such an action could be taken pursuant to the provision²⁴⁵.

An example of literature opposed to the application of the State Redress Act is Atomic Energy Bureau, Science and Technology Agency ed. *Genshiryoku baishou seido (The nuclear compensation system)*, (Tsusho sangyou tsushinsha, 1980), which states that “[...] In the event that other persons who have contributed to the occurrence of said nuclear damage is liable under other laws (State Redress Act, Automobile Liability Security Act), the person may be held liable (possibly not bearing unlimited liability). Hence, it was made explicit in this provision that, other parties shall not bear any liability whatsoever.”²⁴⁶

Although discussions at Committee meetings ended with suggesting that manufacturers and suppliers should be obligated to cooperate in dealing with an accident or to provide relevant information, further discussions should be conducted on applying the State Redress Act to allow operators and the Government to share responsibilities, in which case the Government and TEPCO would bear joint and several liability, and thus parties would shoulder burdens according to their share of negligence, etc., or equally when such ratios cannot be determined.

²⁴⁵ House of Councilors Special Committee on Reconstruction from the Great East Japan Earthquake of the 180th Session of the Diet (March 27, 2012); available at: kokkai.ndl.go.jp/cgi-bin/KENSAKU/swk_dispdoc.cgi?SESSION=12154&SAVED_RID=1&PAGE=0&POS=0&TOTAL=0&SRV_ID=9&DOC_ID=9075&DPAGE=2&DTOTAL=63&DPOS=30&SORT_DIR=1&SORT_TYPE=0&MODE=1&DMY=13588

²⁴⁶ Tanabe and Maruyama (2012) p34-35 indicate that the scheme under the current Nuclear Compensation Act which allows operators to claim compensation from the Government once all compensation claims have been paid to victims encompasses unreasonable dimensions, one of the reasons being that the Government is likely to politically contrive a flexible interpretation of adequate causation. However, given contentions that adequate causation already tends to be extremely flexibly interpreted under the current Nuclear Compensation Act, this no longer constitutes sufficient grounds for concluding that the application of the State Redress Act is unreasonable.

(6) The necessity for considerations on prescriptions²⁴⁷

This subsection will provide an overview of issues regarding prescriptions which were not discussed by the Committee, as compensation had been promptly implemented after the JCO Criticality Accident²⁴⁸ and TEPCO expressed its intention of flexibly addressing benefits of prescription in the TEPCO Fukushima accident²⁴⁹.

Since the Nuclear Compensation Act contains no provisions regarding extinctive prescription, the former clause of Article 724 of the Civil Code on restriction of the period of the right to demand compensation for damages in tort is applied; and therefore, the dominant interpretation is that if a victim does not exercise his/her right of claim within three years from the time when he/she comes to know of the damages, the right to demand compensation for damages will be extinguished by the operation of prescription. In the TEPCO Fukushima accident, given fears that the prescription period would expire on March 10, 2014 for certain types of damages, Ministry of Education, Culture, Sports, Science and Technology (MEXT) presented a “Request regarding the extinctive prescription of right to claim compensation for damages related to the nuclear accident of 2011.” In response, on February 4, 2013, TEPCO announced “TEPCO’s approach to the extinctive prescription of right to claim compensation for nuclear damage”²⁵⁰ which stated that the date that TEPCO began accepting claims for damage compensation would be deemed the starting point of the term of extinctive prescription, that the receipt of direct mail from TEPCO prompting the recipient to claim damages would constitute an interruption of prescription, and that the company would take

²⁴⁷ Papers discussing prescription issues include: Matsumoto, Katsumi, “Genshiryoku songai to shoumetsu jikou (Nuclear damages and extinctive prescription)” (Ritsumeikan hougaku, January 2013)

²⁴⁸ According to Tanabe, Tomoyuki “JCO rinkai jiko no songai baishou (hoshou) shori no jissai ni miru jichitai no yakuwari to kadai (The role and challenges of local governments observed in the management of compensation (indemnification) for damages from the JCO criticality accident) (Y02012), the ratio of agreement on indemnification (damage compensation) against claims reached 97.9% within a year of the accident (September 30, 1999), and 99.6% at the end of the following year (end of December 2001).

²⁴⁹ www.tepco.co.jp/comp/index-j.html

²⁵⁰ “Shoumetsu jikou ni kansuru heisha no kangaekata ni tsuite (TEPCO’s approach to extinctive prescription)” available on TEPCO website: www.tepco.co.jp/comp/images/13020401.pdf

measures to flexibly address the completion of prescription. On May 29, 2013, the Government enacted an act on special measures concerning the interruption of prescription (Law on Special Measures Concerning the Interruption of Prescription Concerning the Use of Procedures for Mediation of Settlement by the Dispute Reconciliation Committee for Nuclear Damage Compensation on Disputes Regarding the Compensation of Nuclear Damages Related to the Great East Japan Earthquake), which came into force on June 5.

Under the law, a person who has made an appeal for mediation of settlement is deemed to have brought an action to the court upon making the appeal if he/she brings an action to the court within one month of receipt that the mediation of settlement has been discontinued. However, this approach cannot fundamentally resolve fears for the following reasons²⁵¹: Firstly, interruption of prescription is only recognized when a victim makes an appeal to the Nuclear Damage Compensation Dispute Resolution Center (ADR Center) for mediation of settlement before the termination of the period of prescription and brings an action to the court within one month from the breakdown of mediation of settlement. Although MEXT would hope that the law on special measures would serve to promote the use of the mediation system²⁵², it needs to take the more fundamentally approach of revising the system itself to be more user-friendly. Furthermore, the interruption of prescription may not apply to items that were not included in the original appeal.

According to the media, the Liberal Democratic Party (LDP) intends to extend the period of prescription for the right of claim for nuclear damages to ten years in the extraordinary Diet session to be

²⁵¹ The Japan Federation of Bar Association, “Opinion paper in request of special legislative measures regarding extinctive prescription of right to claim compensation for damage from the accident at TEPCO Fukushima Daiichi Nuclear Power Plant”; *available at*: www.nichibenren.or.jp/activity/document/opinion/year/2013/130418.html
NHK “Shiten/Ronten: Genshiryoku songai baishou to jikou (Commentators’ views and issues: Nuclear damage compensation and prescription)” (NHK Shiten/ronten, July 1, 2013); *available at*: www.nhk.or.jp/kaisetsu-blog/400/161228.html

²⁵² MEXT website “Bill concerning special measures on the interruption of prescription related to the use of the reconciliation and mediation procedures of the Nuclear Reconciliation Committee for Nuclear Damage Compensation for disputes on nuclear damage compensation concerning the Great East Japan Earthquake”

convened in October this year²⁵³.

Given the wide diversity of responses required according to the scale of accidents, it may be more reasonable to address prescription issues when making decisions on the scheme to deal with the aftermath of an accident. However, the provisions of the current Nuclear Compensation Act, which compels the Government to request flexibility on the part of the victimizer, should be amended in the future, drawing on the results of investigations on the TEPCO Fukushima accident.

2. Addressing major nuclear disasters

Many Committee members stated that the Fukushima accident destroyed “places of being,” such as homes, workplaces and local communities and that many evacuees are seeking the reconstruction of these lost “places of being.” Interviews conducted in the Town of Namie in Fukushima Prefecture by a voluntary group of Committee members revealed that the number of households in the town increased from 7,700 to 11,000 due to the fragmentation of families as a result of the accident, that the approximately 1,700 children who had gone to the town’s five elementary schools and three junior high school are now dispersed in 699 different schools, including some overseas²⁵⁴, and that citizens had evacuated to all other prefectures throughout Japan except Wakayama Prefecture as well as overseas²⁵⁵.

In interviews with residents living in provisional housing in Fukushima City, many people – particularly the elderly – voiced calls for the reconstruction of local community. Not only is it difficult to assess losses related to destroyed communities in terms of money, including these losses in “damages for mental anguish” to provide

²⁵³ TOKYO Web, September 22, 2013, etc. At the timing of compiling this report (as of October 28, 2013) details are yet to be announced.

www.tokyo-np.co.jp/article/feature/nucerror/list/CK2013092202100005.html

www.mext.go.jp/b_menu/houan/an/detail/__icsFiles/afieldfile/2013/05/27/1335522_01.pdf

²⁵⁴ For example, current schools of children from Namie Elementary School: www.namie-es.jp/images/hinanzyoukyou_2506.pdf

²⁵⁵ Current status of evacuated citizens of Namie Town (as of August 31, 2013): www.town.namie.fukushima.jp/site/shinsai/20130831-hinanzyoukyou.html

blanket compensation²⁵⁶ will not resolve the victims' dissatisfaction. The need for the reconstruction of local communities was noted by Yoshihisa Nohmi, Chairman of the Dispute Reconciliation Committee for Nuclear Damage Compensation ("Dispute Reconciliation Committee") who visited the affected areas for the first time in August 2013 and said, "It is important for each local government to restore communities to their original state to the extent possible. They must be enabled to return to their lives before the accident through not only damage compensation but other policy measures as well."²⁵⁷

On March 31, 2012, the Government enacted the Act on Special Measures for Reconstruction and Revitalization of Fukushima ²⁵⁸, pursuant to which it will build public facilities and improve living environments in areas where evacuation instructions have been lifted, as well as support the reconstruction and revitalization of Fukushima through special tax and regulatory measures. In March 2013, the amended Act on Special Measures for the Reconstruction and Revitalization of Fukushima was enacted, with forecasts of the fiscal 2013 budget covering the construction of disaster recovery public housing for 3,000 to 5,000 households²⁵⁹. Hence, now after more than two years since the accident, there are prospects of Government efforts to pave a way forward in improving local community.

Under the current Nuclear Compensation Act, the operators bear unlimited liability, and the Government shall only give a nuclear operator "such aid as is required for him to compensate the damage" when the compensation amounts to be shouldered by the operator exceeds financial security amounts (Section 16) and shall take direct measures to relieve victims only when the operator is exonerated from liability (Section 17). However, with view to the fact that large-scale

²⁵⁶ Takahashi, Shigeru and Tadashi Otsuka. Shinsai, genpatsu jiko to kankyohou (Earthquake-induced disaster, nuclear accident and environmental law) (Minjihokenkyukai, 2013), p104 states that "the interim guidelines presented by the Dispute Reconciliation Committee for Nuclear Damage Compensation actually does consider the destruction of communities under damages for mental anguish."

²⁵⁷ www.minpo.jp/pub/topics/jishin2011/2013/05/post_7135.html

²⁵⁸ Act on Special Measures for the Rebirth of Fukushima:
law.e-gov.go.jp/htmldata/H24/H24HO025.html

²⁵⁹ The Nikkei Shimbun, April 27, 2013, *available at*:
www.nikkei.com/article/DGXNZO54440810X20C13A4CR8000

disasters such as the recent TEPCO Fukushima accident can cause damages that are not reimbursable with money and that these damages have been hindering the reconstruction of the victims' livelihoods, the author would like to note that efforts by the national or local government to revitalize the local community must be made at an early stage after an accident.

Committee members also pointed out the need for a Government disaster compensation scheme, which covers the reconstruction of villages and local communities, to be established separately from tort law-oriented measures and based on, for example, the Land Expropriation Act, which is applied in dam development,. While dominant interpretations of the current Nuclear Compensation Act support the idea that the operator's liability for damages and Government measures based on disaster relief laws ²⁶⁰ - or as aforementioned State liability²⁶¹- could be concurrently effective, others point out that such interpretations are excessively artful and embrace unreasonable aspects.²⁶²

Having experienced both the JCO criticality accident and the recent TEPCO Fukushima accident, we have learned that nuclear accidents can have diversified consequences. Therefore, procedures should be predetermined for deciding on the appropriate scheme to deal with the aftermath of a nuclear accident, primarily in accordance with the scale of the damage caused, at the earliest time possible after the accident has occurred.

<Interviews in Namie Town>

A voluntary group of Committee members visited Namie Town,

²⁶⁰ Otsuka, Tadashi "Fukushima daiichi genpatsu jiko ni okeru songai baishou to baishou shien kikou hou – huhou kouei hougaku no kanten kara (Damage compensation in the Fukushima Daiichi Nuclear Power Plant accident and the Nuclear Damage Compensation Facilitation Corporation Act: from the viewpoint of law of torts" (*Jurist* No.1433, November 2011)

²⁶¹ Takahashi, Shigeru and Tadashi Otsuka. *Shinsai, genpatsu jiko to kankyohou* (Earthquake-induced disaster, nuclear accident and environmental law) (Minjihokenkyukai, 2013), p71 says: "It should be noted that the issue of whether the Government is liable for damages is a separate issue [from the issue of applying the exceptional clause to TEPCO]. Should State liability be acknowledged, it would be based on joint tort or conflicting torts between TEPCO and the Government.

²⁶² Tanabe and Maruyama (2012), p34-35

Fukushima Prefecture on August 23, 2013. A summary of voices regarding the compensation system heard in interviews with Mayor Tamotsu Baba, Vice Mayor Teruyuki Hino and residents living in Minami-Yano provisional housing in Fukushima City is provided below:

i) Frustration regarding the provision of information

- Neither the operator nor Government communicated any information regarding the accident. Feel profound responsibility and anger for not being able to appropriately guide citizens to evacuate.

*Evacuation instructions for Namie Town were announced on March 12 at 5:44AM. Many citizens evacuated to the Tsushima branch office of the town hall where highly radioactive substances are said to have been in the air due to wind direction.

- We have been left in the dark about how much longer we will be forced to live in provisional housing. Without relevant information, it is impossible to decide whether to start new life in a new place, or if progress will be made in decontamination activities, enabling us to return to our original lives. (by victimized resident of Minami-Yano provisional housing)
- Information regarding low-dose exposure risks is also insufficient. (Lectures are being given by JAEA employees at schools, etc.)

ii) Requests for local revitalization

- Although compensation procedures for property damage have been initiated, they require too much time for the calculation of individual damage amounts, and are thus unrealistic.
- Victims have suffered the loss of “places of being,” such as homes – the number of households in Namie Town increased from 7,700 before the accident to 11,000 after the accident, reflecting the fragmentation of large families - workplaces and local communities. Given limits to monetary compensation, alternative measures are required to support relocation, drawing on measures taken for potentially submerging communities in dam construction under the Land Expropriation Act.
- Towns cannot be sustained without work. Citizens will not return if

they find it impossible to restart their businesses, including those in agriculture, forestry and trade. Prolonged evacuation makes it difficult for citizens to decide whether or not to return based solely on radiation levels.

- Having friends close by is most important for the elderly. Many wish to restart life near Fukushima City, Kawamata Town and other neighboring municipalities where many people from Namie Town have evacuated.

3. The optimal legal system for nuclear power operations

After the Fukushima accident, questions were raised about the fact that no indications had yet been made about the operator, TEPCO's infringement of national safety regulations and about the missing link between compliance with the Reactor Regulation Act and judgment of liability under the Nuclear Compensation Act. It was particularly questioned whether the lawmaker-initiated amendment made to the Reactor Regulation Act in the post-accident confusion does not impair the balance between securing the well-planned use of nuclear energy and ensuring public safety.

Despite the importance for nuclear power operators to proactively advance and further their efforts to improve safety levels, Japan's current legal system for nuclear operations is fragmented, with safety regulations, the compensation system and other disaster prevention schemes all designed individually.

Upon revising the current compensation scheme for nuclear damage, a comprehensive picture of the entire nuclear risk management framework must be envisioned, with the acknowledgement that it is a part of a larger bundle of risk coverage and management measures for nuclear energy use, which secure share mutual and complementary roles and coordination with various institutions, including nuclear safety regulations, disaster prevention schemes, community reconstruction support schemes and international nuclear cooperation. The agenda is to determine which reimbursements to give precedence to within the limits of the resources available, how to

prevent the damage from spreading, how to revitalize local communities and how to address these issues promptly and realistically.

Although little was discussed among Committee members regarding international agreements, the author believes that Japan should consider acceding to international agreements concerning nuclear damages, or more precisely, to the CSC²⁶³. Some implications of becoming a party to the CSC would be:

- i) When a domestic manufacturer exports a nuclear power plant, liabilities for damages in any nuclear accident that occurs in the importing country would be held exclusively by the nuclear power operator of the importing country, provided that the importing country is also a party to the CSC. Therefore, Japan would be able to avoid business risks.
- ii) In the event that liabilities are in excess of 300 million SDR²⁶⁴ (approximately 45 billion yen), the country in whose territory the accident occurred is awarded supplementary funding based on contributions from all parties to the Convention.
- iii) Jurisdiction over actions concerning the nuclear damage of a nuclear accident that occurs in Japan will lie only with Japanese courts, even in the case of transboundary damages in other countries. (*As aforementioned in Part I, Chapter 5, actions have been taken against TEPCO in the U.S. for damages suffered as a result of the TEPCO Fukushima accident.)

Such advantages would have great significance to Japan, as neighboring countries such as China, South Korea and Vietnam are projected to expand on their use of nuclear power generation technologies, and it could therefore be important that Japan take the

²⁶³ References on the significance and challenges of acceding to the CSC can be found in: JAIC, *Anata ni shitte moritai genbai seido (Introduction to Japan's Nuclear Compensation System)* (2012), p198-; JELI "Genshiryoku songai no hokanteki hoshou ni kansuru jouyaku kakujou no kaisetsu oyobi houteki mondaiten no kentou (Convention on Supplementary Compensation for Nuclear Damage: interpretation and consideration of legal issues regarding provisions of the convention)" (Japan Energy Law Institute, November 2012), *available at*: www.jeli.gr.jp/report/jeli-R-126@2012_11_CSC.pdf; "Genshiryoku songai baishou ni kansuru jouyaku ni tsuite (International conventions on nuclear damage compensation)" (Nuclear Damage Compensation Division, MEXT, November 2011), *available at*: www.aec.go.jp/jicst/NC/iinkai/teirei/siryo2011/siryo45/siryo1.pdf

²⁶⁴ 1SDR=\$1.534080, based on currency rate of September 30, 2013

initiative in the establishment of an international framework for nuclear damage compensation.

However, the following potential challenges should also be considered:

- i) Clarification of who would shoulder the contributions to the fund and how it would be done

In the event of an accident in another country, Japan will also be required to pay out contributions of 5 to 7 billion yen²⁶⁵ to the fund; and hence it should be made explicit how and by whom contributions will be shouldered.

- ii) Measures for research reactors and other facilities with small financial security amounts

Under Japan's Nuclear Compensation Act, the financial security amount is determined according to the scale of each nuclear facility. Adjustments will be required in terms of the difference between the minimum amount of 300 million SDR required under the CSC and the 4 billion yen in financial security set aside by research facilities and uranium fuel processing facilities.

- iii) Jurisdiction issues

When a nuclear accident causes transboundary damages, the primary issue is which country has jurisdiction and which country's laws apply²⁶⁶. Various situations, such as accidents at nuclear facilities on land and those on the ocean, while transporting nuclear fuel, must be considered. As there is no comprehensive global agreement on jurisdiction, in the absence of a particular international legal framework, victims may take court action in the country with a body of substantive law most beneficial to them. This can be advantageous for the victim, while imposing substantial burdens upon the party liable.

²⁶⁵ JAIC, *Anata ni shitte moritai genbai seido (Introduction to Japan's Nuclear Compensation System)* (2012), p201. It should be noted that the currency rate of November 1, 2012 was used to convert amounts to yen and that future changes in currency rates may affect contribution amounts.

²⁶⁶ Japan Energy Law Institute. *Genshiryoku songai baishou ni kakakru houteki wakugumi kenkyuuhann houkokusho* (Report of the Working Group on Legal Frameworks for Nuclear Compensation) (March 2007) analyzes the international framework on nuclear damage compensation and contains detailed discussion on jurisdiction issues. The report provides important insight to be drawn on in future discussions on acceding to the CSC.

As aforementioned, 26 residents of the U.S. who worked as crew members of a U.S. carrier vessel in the relief support activities after the Great East Japan Earthquake have taken action against TEPCO in the U.S. District Court for the Southern District of California, claiming compensation for damages suffered by each plaintiff and punitive damages, as well as demanding the establishment of a fund of a minimum of 1 billion U.S. dollars to cover costs required for the plaintiffs' medical tests and treatment²⁶⁷. Should such actions continue, Japan's nuclear operators will have to cope with great burdens.

In contrast, Japan will have to accept the requirement that in the event a nuclear accident occurs in another country and it is affected by damages, pursuant to the principle of concentration of jurisdiction, Japanese citizens must take legal action in the country in whose territory the accident occurred. This is one of the reasons that Japan has been reluctant to become a party to the CSC, and requires careful consideration. Even if Japan accedes to the CSC, actions may still be taken simultaneously in non-party jurisdictions; and hence, a framework encompassing all neighboring countries is required.

²⁶⁷ Announcement on Actions against TEPCO in the U.S. on TEPCO website: www.tepco.co.jp/ir/tekiji/pdf/130315-j.pdf

Part III

Toward the Establishment of a New Compensation System for Nuclear Damages

Chapter 1 Liability For Damages In Civil Society

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1. Negligence liability and freedom of action

The Act on Compensation for Nuclear Damages (“Nuclear Compensation Act”) which has been applied to the nuclear damages caused by the Tokyo Electric Power Company, (TEPCO) Fukushima Daiichi Nuclear Power Plant is a special act on acts of tort provided for in Article 709 and succeeding articles of Japan’s Civil Code. Section 3 of the Nuclear Compensation Act holds nuclear operators liable for nuclear damages caused by the operation of nuclear reactors regardless of negligence, unlike Article 709 of the Civil Code which requires an infringement conducted by intent or negligence. However, in the event the damage is “caused by a grave natural disaster of an exceptional character or by an insurrection” the nuclear operator is exempted from liability. Furthermore, Section 4 of the Nuclear Compensation Act constitutes an exception to the Civil Code by channeling liability exclusively to nuclear operators (operators of nuclear power plants). Therefore, suppliers of nuclear fuel and manufacturers of nuclear reactors are not liable against victims of nuclear accidents. The Nuclear Compensation Act also includes provisions on financial security that guarantee compensation payments and on the establishment of a Dispute Reconciliation Committee for Nuclear Damage Compensation (“Reconciliation Committee”), which do not modify or alter the principle of liability under the Civil Code. The Nuclear Compensation Act is a special act to the Civil Code which channels strict liability exclusively to nuclear operators.

Turning to the basics of the principle of responsibility under tort

law (compensation law), the current Civil Code, needless to say, assumes civil society based on a goods exchange economy. The law principles and legal system of the Civil Code seeks to guarantee all individuals the freedom of will, the freedom of action and property rights in order to establish and functionalize a smooth market economy society. For example, the fundamental principles of civil law, namely, the “freedom of legal personality,” “absolute property rights,” and the “freedom of contract” constitute the legal doctrine underlying goods exchange which allows all persons to trade his/her goods (including labor and services) on equal footing with his/her counterparts, but this should not require elaboration.

The principle of negligence liability in compensation law is also founded on the guarantee of an individual’s freedom of action and property rights in civil society. In civil society, an individual (A) can act freely according to one’s will. In so doing, he/she may infringe upon another individual (B)’s property rights (or physical body, hereunder collectively referred to as “property rights”), in the event of which A must compensate for the damages imposed upon B if there is evidence of negligence on the part of A. This is what is referred to as “negligence liability” (Civil Code Article 709). “Negligence,” briefly explained, is the failure to act with adequate care to prevent the occurrence of foreseeable damages.

Under negligence liability, A’s freedom of action is primarily respected. An infringement upon B’s property rights is compensated for only in the event that there is negligence on A’s part. This brings us to wonder whether it wouldn’t be unfair to B if the damages suffered by B remained uncompensated if there was no negligence on the part of A. On the other hand, B also would not be liable for damages in another instance of the like if B did not act in negligence, and hence, the system has been considered is not to be necessarily unfair. This reasoning would be justifiable as long as all individuals were capable of participating in market transaction on an equal footing, that means A and B are interchangeable. However, the most fundamental grounds for negligence liability is the importance of calculability or predictability (foreseeability) in a market economy society. A market where the results

of an action could impose responsibilities that were not foreseeable would be lacking in legal stability. Under a negligence liability system, a person would have to compensate for damages when the actor fails to prevent the occurrence of foreseeable damages. Therefore, negligence liability provides a certain degree of foreseeability to an actor's freedom of action.

2. Negligence liability and foreseeability

However, with the gradual prevalence of capitalism in the 20th century and the rapid advancement of industrialization in developing countries as well as global market domination and technological innovation by major companies in developed countries, particularly after the latter half of the 20th century, events which imposed serious damages upon third parties came to occur frequently as a result of complex operational processes of large companies. It is extremely difficult to charge the offending company with negligence (to prove that the damages were foreseeable and therefore preventable). Hence, many countries have adopted legislations that do not require the negligence principle for tort compensation against the backdrop of increasingly strong assertions that liability should be acknowledged without consideration of negligence or no-fault on the part of actors of dangerous corporate activities. (Europe already had laws of strict liability governing the railway and mining sectors in the 19th century.)

The damage compensation system of modern society which assumes a market economy embraces a system that allows the continuity of corporate activity by providing businesses a certain extent of predictability (calculability). Most strict liability legislations are linked with limited liability; and therefore, if a company bearing strict liability obtains liability insurance which covers damages to the limit of liability under limited liability, the compensation payment will be covered by insurance, and therefore it will be able to continue its business operations.

3. Categories and scope of damages to be compensated

Compensation laws of civil society have not only limited the liability requirement to negligence but they have also acknowledged only certain categories or scope of damages and therefore do not compensate for all tangible and intangible damages. For example, the emotional damage suffered by witnessing another person's physical damages is unlikely to be compensated as such damage is subjective and cannot be sufficiently proved. A computer company that could not finish calculations before a due date because of a blackout would likely not be able to claim compensation for the damages caused by a person who accidentally collided into a steel pole and consequently cut the power lines because such results were not foreseeable under ordinary circumstances. Adequate causation and pure economic loss are addressed in many discussions regarding tort law; but nevertheless, modern tort law, which assumes a market economy, limits the scope of damages that should be compensated, and as a result leaves victims with tangible and intangible damages. However, many damages suits filed in the United States and United Kingdom this past half-century have acknowledged the compensation for unconventional categories of damages and large compensation amounts.

Given such trends, P.S. Atiyah, former professor at Oxford University proposed that actions for damages for injuries be abolished in his 1997 book "The Damages Lottery" (Hart Publishing, Oxford), on grounds that the present (bodily) damage compensation system is an undisciplined unfair and inefficient compensation system. This book was translated into Japanese by Professor Reijiro Mochizuki and published from Bokutakusha in 1999 under the title "Diversion of Law/ Damage Compensation: A Hotbed for the Blame Culture." As this paper's main aim is not to introduce Professor Atiyah's book, the author will refrain from elaborating on further details, but the damage compensation process of the TEPCO Fukushima accident would lead one to think that the law has been going out of its way to charge TEPCO with large debts instead of implementing measures to truly compensate for damages suffered by victims. Professor Atiyah states that "the law

[note: the expansion of damage compensation by judicial precedents] encourages people to blame others for their misfortunes” (Mochizuki, translated version, p 192) and that “the present [damage compensation] system has mislead the public to believe that large compensation payments justify the wrongdoer’s actions” (Mochizuki, translated version, P225). Observing the way TEPCO’s damage compensation payments were gradually accumulated, we are left with the impression that Professor Atiyah’s theory was not necessary exaggerated.

4. The Nuclear Compensation Act and the Civil Code

The tort law provisions under the Civil Code provide the actor = perpetrator with predictability (calculability) and therefore guarantees his/her freedom of action, in terms of liability requirements as well as the scope of damages that should be compensated, based on the concepts of negligence and adequate causation which both hinge on foreseeability. On the other hand, the victim must suffer the damages when the perpetrator has not acted in negligence and the damages are beyond adequate causation. The Act on Compensation for Nuclear Damages (“Nuclear Compensation Act”) is a modification of Article 709 of the Civil Code in terms of the requirements for liability. However, it does not alter in any way the scope of damages which should be compensated. The current Nuclear Compensation Act has adopted strict liability but nevertheless carries the “protection of persons suffering from nuclear damage” and “the sound development of nuclear power business” as its objectives (Section 1).

The former administration announced that it would compensate for the damages suffered by victims in full, almost as if the nuclear compensation system could cover all damages. Furthermore, the Reconciliation Committee (Nuclear Compensation Act Section 18) appointed by the former administration formulated the Preliminary Guidelines on Determination of the Scope of Nuclear Damage, which is based on an interpretation of adequate causation which ignores or significantly exceeds past judicial precedents as if to “justify the

wrongdoer's actions through large compensation payments.” However the Guidelines formulated by the Reconciliation Committee do not necessarily respond to the wishes of victims based on a thorough understanding of the actual state of damages in affected areas, and are therefore arousing an increasing sense of unfairness and aggravating discontent and fear.

5. The structure of Part III

Chapter 1 explained the basic concept of compensation law under laws of civil society which support market economy. While the main objective of compensation law is the compensation of damages suffered by victims, it includes consideration for the individual's freedom of action in society. Requiring “negligence” on the part of the actor in determining liability is one such aspect (by excluding the liability of a non-negligent action). Even under strict liability, the limitation of liability, or setting a maximum amount for compensation payments, ensures foreseeability for actors. This chapter also discussed adequate causation which sets a certain limit to the categories and scope of compensation.

In Chapter 2, titled “The Nuclear Accident and Damage Compensation Laws,” Committee member, Prof. Ikufumi Niimi will elaborate further on the brief discussion herein on the categories and scope of damages to be compensated. Unconventional categories of damage such as business losses and damage induced by harmful rumors, which had never been addressed in tort compensation, were acknowledged in the compensation of nuclear damages resulting from the TEPCO Fukushima accident. Chapter 2 refers to overseas debates including those in the U.S. and the U.K. and concludes that by acknowledging such compensation claims, the scope of compensation has exceeded the limits of foreseeability. In Chapter 3, titled “The Nuclear Compensation Act, Strict Liability-based Damage Compensation System and the Compensation for Damages Suffered by Victims of Accidents at Nuclear Power Plants, ” Committee member Prof.

Michitaro Urakawa discusses the relationship between strict unlimited liability and government compensation. In Germany, where the German Atomic Energy Act also adopts a strict and unlimited liability system similar to that of Japan's Nuclear Compensation Act, there had been deliberations that in the event of major damages that exceed a certain amount available to satisfy such liabilities, the State should consider providing appropriate government compensation, acknowledging the incident as a national disaster that cannot be overcome by means of civil liability. Swiss law also provides for intervention by Parliament in the event damages exceed a certain amount covered by financial security. There are major limitations to compensating for damages thorough individual procedures under the current Nuclear Compensation Act. Hence, Prof. Urakawa proposes the establishment of an administrative compensation system similar to the Law Concerning Compensation and Prevention of Pollution-Related Health Damage that will function separately but concurrently with the existing damage compensation system under the current Nuclear Compensation Act.

Chapter 4 proposes a fundamental revision of the current Nuclear Compensation Act, which does not assume a major nuclear accident that will impose a diversity of damages upon a massive number of victims. Hence a new nuclear compensation system is proposed in light of recent experiences. The scheme for pooling amounts for compensation should be designed in accordance with the U.S. Price-Anderson Nuclear Industries Indemnity Act ("Price-Anderson Act"), and therefore require nuclear power operators to make additional payments backed by governmental support in the event of an emergency. As provided in Section1, if the Nuclear Compensation Act aims to "contribute to the sound development of the nuclear business" and to "protect persons suffering from nuclear damage," it is insufficient under the current system to simply impose strict unlimited liability on operators while the Government only provides loans by issuing government bonds. Furthermore, the law should provide for the establishment of an administrative committee that manages compensation procedures and supervises the categories of damages,

compensation amounts and payment procedures, and in the event that a victim is dissatisfied with the treatment provided by the committee the victim may bring an action to the court.

Chapter 2 Proposal of a Law for the Indemnification of Nuclear Damages

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1. Introduction

The cause of the accident at Tokyo Electric Power Company (TEPCO)'s Fukushima Daiichi Nuclear Power Plant ("Fukushima accident") having been attributed to TEPCO, compensation procedures have been carried out according to the Act on Compensation for Nuclear Damages ("Nuclear Compensation Act") with TEPCO primarily liable for the damages caused by the Fukushima accident. Legislated as a special act to the law of torts under the Civil Code, the Nuclear Compensation Act imposes extremely stringent liability. However, the Nuclear Compensation Law does not contain specific provisions on the consequences awaiting those liable for damages. It only provides the concept that "nuclear damages" are damages which should be compensated for and fails to define the categories and scope of these damages. Therefore, given the absence of specific provisions regarding the categories and scope of damage compensation in the Nuclear Compensation Act, which is a special act, it is assumed that the categories and scope of damage compensation shall be determined according to the tort provision in the Civil Code.

This chapter will review the discussions concerning the categories and scope of damage compensation under tort law in order to seek to what extent damages caused by a nuclear accident can be covered by tort law, or its limitation. Then it will provide ideas for pursuing the appropriate measures for compensating for damages exceeding such limitation.

Nuclear accidents can occur in various scales. This chapter will assume an accident of a scale equivalent to the Fukushima accident which caused the gravest consequences in Japan's history.

The negative impacts of a massive nuclear accident can be extraordinarily widespread both in space and time. The most significant

reason for this is the risks imposed by the radioactive substances that are emitted and dispersed from a nuclear accident (“radiation risks”). If we can only say that there are no negative risks when the risk level is zero, then radiation risks remain spatially to the extent that radioactive substances have dispersed and temporally until its physical decay. Also, depending on the level of contamination by radioactive substances, the negative impacts of radiation risks can not only violate the life, body, health, property or other rights and interests of an individual but also greatly impact the electricity and gas supply of cities and agricultural, mountainous and fishing villages as well as infrastructure, including roads and railways, and diminish or undermine the functions of communities which have served as the basis of residents’ livelihoods. Furthermore, environmental elements including the soil, rivers, oceans and atmosphere will be destroyed or deteriorated. When these negative impacts interact additively or synergistically, citizens who live, work or own businesses in contaminated areas are confronted with even graver circumstances.

The priority issue is how to compensate for the damages suffered by the public as a result of the abovementioned long-lasting, widespread and diversified negative impacts.

As stated in the beginning of this chapter, compensation measures have been taken by applying the Nuclear Compensation Act to many, although not all, negative impacts of the Fukushima accident, based on the assumption that TEPCO is primarily liable for the accident. The categories and scope of damages to be compensated for are to be determined according to the general law of torts. However, as undermentioned, the public cannot be adequately compensated under tort law, which has its own given role. We must promptly discuss how we can recover or compensate for the negative impacts that cannot be fully compensated under tort law, with regard to its role and limits.

2. The role and limits of damage compensation law

(1) The features of modern tort law

i) Overview of tort law

Damage compensation law, which aims to compensate for damages caused by a third party can be largely categorized into tort liability law and contract liability law. The mutual relationship between these two legal frameworks are varied among countries. For example, countries governed by Common Law, where the freedom of contract is respected, adopt a contract liability framework based on the literal interpretation of the wording of a contract and seek to precisely understand the will of concerned parties in order to avoid the arbitrary interference of the courts. Tort liability is applied to cases which cannot be addressed with a contract liability approach. Therefore, tort law can flexibly cover a wide scope of liabilities. German law contrarily focuses on protecting the individual's freedom of action and consequently applies tort law in a more stringent manner, although not as strictly as the principle of legality in criminal law. When appropriate conclusions cannot be derived by applying tort law, resolutions are sought through the most flexible interpretation possible of contract liability law. In French law, both tort liability law and contract liability law can be flexibly applied, but the concurrent application of tort liability law is excluded in the case of a conflict of laws (prioritization of contract law). In comparison to the aforementioned countries, Japan interprets both tort law and contract law flexibly and has yet to develop a theory for conflict of laws such as that of France.

The features of Japan's legal framework will be taken into consideration in the subsections below:

ii) Concepts underlying tort law

Tort law in modern civil society is supported by the concept of ensuring the freedom of individuals which underlies individualism²⁶⁸.

²⁶⁸ Kato, Ichiro (1974) Huhoukouihou [Zouhoban] (Tort law [expanded edition]). Yuhikaku. p7; Maeda, Tatsuaki (1980) Minpo IV2 (Huhoukouihou) (The civil code IV2 (Tort law). Seirin Shoin Shinsha. p8; Morishima, Akio (1987) Huhoukouihou Kougai (Tort law lectures). Yuhikaku. p255. Reference should also be made to Wagatsuma, Sakae

As in J.S. Mill's theory of liberty, the prevalent idea of liberty was that that "the individual ought to be free to do as he wishes unless he executes tangible harm upon others." There was also strong belief that some extent of blameworthiness was required in order to hold an individual liable. Against this backdrop, tort law adopted a negligence liability or self-liability principle and became reluctant to compensate intangible damages and damages caused by nervous shock that does not accompany a tangible infringement imposed upon the victim ²⁶⁹.

After the Industrial Revolution, as society developed with the advancement of science and technology, dangerous activities increased and it became evident that the perpetrator and victim no longer stood on equal footing. Hence, strict liability came to be acknowledged in wider fields as an exception to the principle of negligence liability (cf. Part III Chapter 3)²⁷⁰.

(2) The evolution of post-war tort law

In the 20th century, while the asymmetrical relationship between the victim and the perpetrator became even more conspicuous against the background of an increasingly mature society, the mutual exchangeability of potential victims and perpetrators was enhanced despite an asymmetrical relationship in some areas, including traffic accidents. Also, liability insurance developed as a widely accepted form of insurance. Given these circumstances, the principle of equality, as emphasized in welfare statism, came to be strongly perceived; and hence, the theory that tort law should be rooted in compensating for damages suffered by those victimized instead of blaming perpetrators evolved, and, the primary purpose of tort law thus came to be the fair compensation of victims²⁷¹.

(1988) Jimukanri / hutouritoku / huhoukouei [Hukkokuba.n] (Office management, unjust enrichment, torts [reprinted edition]). Nihon Hyoron-sha. p96- (First published in 1937)

²⁶⁹ Given the natural consequence of the death of an individual to cause nervous shocks among those who were close to him/her, Article 711 of the Civil Code acknowledges the payment for pain and suffering to a defined scope of next of kin. Article 711, is therefore, an example of limitations upon the compensation for nervous shocks suffered by individuals whose tangible rights have not been infringed upon.

²⁷⁰ Wagatsuma (1988) p97; Kato (1974) p9-; Maeda (1980) p3-; Morishima (1987) p256-

²⁷¹ Wagatsuma (1988) p98; Kato (1974) p9-; Maeda (1980) p26-

(3) Scope of damages

In its evolvement, tort law has not abandoned the theory of protecting the freedom of the individual. Both negligence liability and strict liability tort law frameworks aim to compensate for damages suffered by the private individual, and hence, they both pursue the protection of private rights or private interests protected by law. This is evident in the amended Article 709 of the Civil Code which requires the infringement of “any right of others, or legally protected interest of others (‘requirement of infringement of legally protected interests’), whereas it required an infringement of the “rights of others” to satisfy a damage in torts (‘requirement of infringement of rights’), before the amendment of the Civil Code in 2004. Protecting the freedom of the individual continues to be an important theory in modern tort law which can be achieved by determining the outer limits of legally protected interests in order to secure foreseeability. Furthermore, the scope of damages caused by an infringement of legally protected interests which will be compensated should be made explicit to serve the purpose of securing foreseeability and protecting the freedom of the individual.

3. Compensating for nuclear damages and the limits of tort law

(1) Legally protected interests

i) Changing from an infringement of rights to illegality: its significance and challenges

As aforementioned, Article 709 of the Civil Code has been amended to require an infringement of legally protected interests instead of an infringement of rights in order to establish a tort. The amendment was based on the acknowledgement by case law and scholarly theories that “legally protected interests” would constitute the “rights” referred to in the “requirement of infringement of rights” and the prevailing orthodoxy

that an infringement of rights under this article can be established if “illegality” can be acknowledged based on a correlative judgment of the offense and infringed interests (“illegality theory”).

Replacing the “requirement of infringement of rights” with the “requirement of infringement of legally protected interests” gives room for flexibility in determining the scope of compensation and for its expansion, but simultaneously creates ambiguity in its limits. The amendment was made presumably under the influence of German debates, but it should be noted that there had been much discussion upon drafting the Civil Code that the “infringement of rights” was required with an aim to exclude indirect damages from the scope of damages to be compensated under negligence tort liability law. It had been understood from the timing of legislation that determining the scope of damages was a major issue in tort law. However, such understanding waned with reinterpretation of the “requirement of infringement of rights” to the “requirement of the infringement of legally protected interests” and hence the prevalence of the correlative theory. This may be in part related to the call for flexible identification of damages to be compensated in the framework of the Japanese Civil Code which does not distinguish between negligence and intent as requirements for establishing tortious acts.

ii) Theoretical confusion regarding legally protected interests

a) Indirect damage (in particular, corporate damage)

The limits of business damages to be compensated is a major issue of debate in compensating for nuclear damages. A particularly serious issue is whether or not to provide compensation for indirect damages and damage from harmful rumors, and the scope of damages to be compensated when these damages are included. The approach taken by tort law regarding these two forms of damage are discussed in the following paragraphs.

Indirect damages are damages imposed upon a person who has a certain relationship with the victim, as a consequence of the tangible damages directly suffered by the victim. These include medical or funeral expenses forced upon close relatives of a direct victim (“family

case”) and business losses suffered by a company that lost a prospective contract because its employee was caught in an traffic accident on his way to meet the counterparty (“business loss case”). Other examples include lost profits resulting from being forced to temporarily close a business because the telephone lines are out of service as a result of a fire caused by negligence spreading to the telephone exchange (“telephone line case”) and damages suffered by a frozen food company whose truck had been carrying frozen products which melted and lost commercial value when it was caught in a massive highway traffic jam triggered by an accident caused by improper driving (“accident-triggered traffic jam case”).

Regarding the “family case,” precedents and scholarly theories support without debate compensation for the indirect damages suffered and often collectively refer to those suffering damages as “the victimized.” However, in terms of the “business loss case,” the Supreme Court supports the original verdict that adequate causation can be acknowledged when there is “socioeconomic unity” between direct and indirect victims²⁷². This decision of the Supreme Court would seem to have affirmed the discussion of whether to compensate for business losses based on judgment of adequate causation but substantially supports the original verdict which required a special relationship of “socio-economic unity” to acknowledge adequate causation. This should be interpreted as support for the application of a special framework called “socio-economic unity,” to judge the presence of adequate causation, which is usually determined based on whether or not an event was foreseeable. Many lower court rulings do not apply the adequate causation theory but determine whether particular damages should be compensated for based on the presence of “socio-economic unity.”²⁷³ Scholarly theories are divided between those which, in support of precedents, categorically exclude business losses from the scope of damage compensation based on judgment of the presence of

²⁷² Supreme Court decision of November 15, 1968, Supreme Court Reports (civil cases) 22-12-2641

²⁷³ The status of precedents and scholarly theories are discussed in Hirano, Hiroyuki (2005) *Kansetsu higaisha no hanrei sougou kaisetsu* (Comprehensive guide to precedents regarding indirect victims). Shinzansha

“socio-economic unity” and those which contend that the scope of compensation should be determined as an issue of adequate causation or the scope of protection, with the former theory enjoying stronger support. Precedents and scholarly theories basically take a similar approach for other indirect damages.

b) Damage induced by harmful rumors

“Damage induced by harmful rumors” are economic losses which are suffered as a result of an unfounded reputation among the general public²⁷⁴. In a modern information society where information is widely communicated at high speed, harmful rumors spread quickly and can occasionally impose grave damages upon victims. Also, given the advancement of information technology, information can be accumulated at low cost and can therefore be easily retrieved. Hence, bad rumors tend to be sustained over a long period of time unless they are explicitly denied.

Precedents have developed an almost established approach towards damages caused by harmful rumors which holds the sources of the rumors in question or person(s) who fueled their dissemination liable for torts based on theories on defamation and damage to credit²⁷⁵, and scholarly theories also support this view.²⁷⁶

²⁷⁴ A multidimensional discussion on damages from harmful rumors can be found in Sekiya, Naoya(2011) *Fuuhyo higai: sono mekanizumu wo kangaeru (A study of the mechanism of harmful rumors)*. Kobunsha

²⁷⁵ For example, the Supreme Court ruling of the Tokorozawa Dioxin News Coverage case (July 11, 2003, Supreme Court Reports (civil cases) 57-7-815) held the news agency which made misleading reports which created the harmful rumors of high-concentration contamination of vegetables grown in areas surrounding the waste combustion plants emitting dioxins liable for torts. Reference should also be made to the Tokyo High Court ruling of the O-157 Food Intoxication case (May 21, 2003, *Hanrei Jiho* 1835-77, Monthly Rulings 53-2-18) regarding the government press release of an interim report that attributed O-157-induced food poisoning to radish sprouts grown in a certain region and caused a drastic nationwide drop in radish sprout sales, which affirmed government compensation, ruling that even if the interim report had not been based on scientific evidence, the announcement itself was lawful whereas leaving the interpretation of the interim report completely in the hands of the media and consumer was illegal.

²⁷⁶ The majority of reviews of the Supreme Court ruling of the Tokorozawa Dioxin News Coverage case support the Court rulings. Hashimoto, Yasuhiro. *Hogaku Kyoshitsu* (Yuhikaku) No. 283 p102; Maeda, Yoichi. *NBL* No. 788 p83; Kamiya, Masako. *Minsho-zasshi (Journal on Civil & Commercial Law)* Vol. 130 No. 4=5 p850; Matsunami, Shigeo. *Jurist* No.1276 p140; Morita, Osamu. *Hogaku-kyokai-zasshi* Vol.121 No.9 p205; Uzaki, Masahiro. *Hanrei jiho* Vol.1867 p180; Wada, Shinichi. *Hogaku kyoshitsu* Vol.294

Whether or not person(s) who generated the cause underlying the rumored fact (“causer of rumored fact”) should be held liable for damages caused by the harmful rumors in question has yet to be fully discussed. Several precedents have addressed the liability of the “causer of rumored fact,” which has in most cases been determined according to the presence of adequate causation between the rumored fact and the damages caused by harmful rumors. These court decisions, with the exception of Case 8 were made after the publication of the Nuclear Damage Investigation Study Group, Final Report of Nuclear Damage (“JCO Final Report”) on the compensation for damages suffered as a result of the JCO criticality accident and many of them involved claims for damages caused by harmful rumors (Cases 4, 5, 6, and 7). Therefore, they were greatly impacted by the views presented in the JCO Final Report. In the paragraphs below, the court ruling summary of Case 8, which was resolved prior to the publication of the JCO Final Report will be first discussed, followed by a study of the implications made in the JCO Final Report and Cases 4, 5, and 6, and an additional review of Case 3, which is not related to any nuclear accident. Cases 1 and 2 dismissed claims on the grounds that there was no evidence of damages and will therefore be excluded from discussions herein.

Case 8 regarding damages caused by harmful rumors aroused by the leakage of radioactive materials from the Tsuruga nuclear power plant dates back to before the JCO criticality accident and is presumed to have had implications on the JCO Final Report. In Case 8, the court ruled that “in the event that radiation leakage occurs in Urasoko Bay, located in Tsuruga Bay, it can be commonly acknowledged that the anxiety in consumer minds towards the possible risks would cause them to want to avoid purchasing seafood caught in Tsuruga Bay, even if the radiation leakage measurements are within a safe level and this information is officially announced,” and therefore, “ the damages

supplementary volume (selected precedents of 2004) p23; Niimi, Ikufumi. *Jurist extra edition* No.1269 p91 (commentary on important precedents of FY2003); Matsunami, Shiego. *Hoso Jiho* Vol.53 No.3 p243; Yamaguchi, Itsuko. *Jurist supplementary volume* No. 179 p190; Matsunami, Shiego. *Commentary of supreme court precedents (civil cases)* (2003) p498; Tai, Yoshinobu. *Shiho hanrei remarks* (supplementary volume of *Horitsu jiho*) No.30 p58

suffered by concerned parties as a result of decreased sales of fisheries products from Tsuruga Bay should be considered damages connected to a certain limit by a link of adequate causation with the accident.” However, regarding the sales drops of seafood from Kanazawa, it ruled that when consumers “avoid purchasing fish from Kanazawa, [...] where radioactive contamination is completely unthinkable, and prefer not to eat produce from regions even farther away, such a state of mind cannot be commonly acknowledged, but is the result of consumers’ judgment based on emotions aroused by the accident which cannot be found to be a direct consequence of the accident;” and that “if compensation orders were to be given on the grounds of emotional concerns regarding the safety of fisheries products from Kanazawa, then the decline in consumption in Kanazawa would also have to be acknowledged and that would unnecessarily expand the scope of damages;” and “even if [...] sales did drop after the accident in question, this is a result of consumers’ individual states of mind, which were extremely subjective states of mind that consumers would not eat something that was safe; and therefore, it is unlikely that the same circumstances will constantly lead to the same situation, which was not in general terms foreseeable.” Hence, claims for compensation were dismissed on the grounds that there was no adequate causation.

In Case 8, the court’s judgment on whether a link of adequate causation could be found was based on whether “a state of mind in which consumers preferred to avoid fisheries products was commonly acknowledgeable” when safety had been proved in terms of measurements but consumers were nevertheless concerned about the risks. However, any state of mind on the part of consumers who consider fisheries products to be hazardous and thus avoid purchasing them in the absence of objective evidence is subjective, and this can be said in terms of both fisheries products from Tsuruga and surrounding areas and for those from Kanazawa. The ruling does not clarify on what grounds a state of mind would be commonly acknowledged or what would constitute an subjective state of mind. From the statement that avoiding the purchase of seafood produced in Kanazawa, “where radioactive contamination is completely unthinkable” “is not commonly

acknowledgeable,” it could perhaps be interpreted that such practices are not commonly acknowledgeable in the event that “radioactive contamination is non-existent” or there is zero risk, but that refraining from purchasing fisheries products out of concerns regarding their risks is can be acknowledged under all other circumstances. Otherwise, the adequate causation referred to in Case 8 cannot be logically explained.

The JCO Final Report continued to adopt the approach taken by the “Nuclear Damage Research Group’s Interim Confirmation – Views on business damage” (“Interim Confirmation”) and acknowledged “business damages” to include: “for business operations related to agricultural and livestock products harvested in Ibaraki Prefecture sold widely outside Ibaraki Prefecture, businesses the actual reduction in income (gross profit = total sales profits calculated by deducting the cost of sales from sales), which arose during the period up to the point in time (November 2009) when the required and appropriate time had passed for the general public to learn of the accurate information provided through the report by the Accident Investigation Headquarters (November 4, 2009) and the explanatory meetings for local residents (November 13 and 14, 2009), from transactions with a production or business base in Ibaraki Prefecture and for which rejection by the counterparts could be acknowledged to be inevitable”; “for other business operations which are based in the in-house evacuation area, the actual reduction in income which arose during the period up to the point in time (November 2009) when the required and appropriate time has passed for the general public to learn of the accurate information provided through the report by the Accident Investigation Headquarters (November 4, 2009) and the explanatory meetings for local residents (November 13 and 14, 2009), from transactions with a production or business base in Ibaraki Prefecture and for which rejection by the counterparts could be acknowledged to be inevitable”; and the reduction in income for which a link of adequate causation can be found through individual verification.

The Interim Confirmation which served as the basis for the JCO Final Report states that “business damages” are included in “nuclear

damages” under the Nuclear Compensation Act as long as a link of adequate causation is found with the nuclear accident. Furthermore, it acknowledges that (a) the inclusion of business damages and other economic damages incurred upon those who have not suffered direct bodily or physical damages as “nuclear damages” will infinitely expand the scope of damages and may risk impairing a victim compensation system; but nevertheless generally takes the approach that (b) “the debate undertaken upon the legislation of the Nuclear Compensation Act embraced views that all damages falling within the scope of adequate causation should be compensated instead of taking such a restrictive approach”, that “the interpretation of the scope of application should not narrowed without reasonable grounds” regarding items which are explicitly exempted in written law, and that the scope of application of the Nuclear Compensation Act should be interpreted with due consideration of its *raison d’être* and so that its purpose of “protecting persons suffering from nuclear damages” is not undermined. That said, it states that (c) “it is undeniable that there is much unknown [regarding radiation, etc.] and that it is a well-known fact that incorrect operations can risk grave and large impacts on the human body and physical matters”; and that (d) “given the fact that Japan is the only country to have experienced atomic bombing and that the breakout of grave nuclear accidents in Three Mile and Chernobyl has been covered in the news, the general public particularly faces fear and a sense of danger towards radiation, radioactivity and nuclear power”; and points out that (d) “the accident in question is a radiation accident which has been designated level 4 under the International Nuclear Event Scale (INES) and is unique in that three workers have actually suffered extremely grave radiation damage.” It goes on to acknowledge that (e) “the members of the rescue squad and some local residents living in surrounding areas are likely to have been exposed to radiation which was of levels not hazardous to the human body but higher than natural levels. Given these circumstances, it should be said that the accident in question built an significant sense of fear and danger among the general public (in particular, resident of surrounding areas, counterparts and general consumers).” It also states that (f)

“psychological and subjective factors including the awareness, understanding and speculation of the ‘persons’ concerned with the transaction in question play an important role in motivating and determining the value of property and human purchasing behavior. Therefore, the abovementioned subjective factors cannot be dismissed upon determining the scope of ‘nuclear damages’; and that (g) “it is not appropriate to regard the sense of fear and danger embraced by the general public to be an completely personal and transient inordinate state of mind which should be excluded when determining the scope of ‘nuclear damages.’”

The Interim Confirmation which includes “business damages” among “nuclear damages” provides that the scope of compensation would be determined based on the theory of adequate causation, the “adequateness” of which would be judged based on temporal and spatial factors. It provided that judgment should be based on concrete facts derived by investigating the penetration level of an understanding of the safeness of the situation among local residents living in surrounding areas and the point of time in which the market’s response had calmed down, and stated that “at the timing of the publication of the Interim Confirmation, the temporal scope of damages is identified to be the period up to the end of November 2009 when the sense of fear had been calmed down following the report to the Nuclear Safety Commission (NSC) under the Science and Technology Agency, explanatory meetings for local residents and coverage in the mass media, and the spatial scope is within a 10 kilometer radius of the accident site. Based on the understanding of the average and general person, a transaction regarding which rejection [by counterparts] was considered inevitable and income was actually reduced should be considered to have, in effect, a causal connection, and a link of adequate causation should thus be acknowledged unless proven otherwise. Under the Interim Confirmation, (i) the temporal factor would be defined not as the timing of the declaration of safety by the Government emergency headquarters but as the timing when the sense of danger among local residents living in surrounding areas or the unrest in the market had calmed down which should be determined

with reference to the point in time after accurate information has been communicated to settle the situation and a reasonable and adequate amount of time has passed for such information to reach the general public; and (ii) the spatial factor should be determined with reference to the 10 kilometer radius of the accident site determined by public authorities on the grounds that being the area that Ibaraki Prefecture ordered in-house evacuation based on measurements at the monitoring post at the 7-kilometer point, it would serve as an objectively and adequately rational criterion for judgment, and that the general public could have understood the in-house evacuation order to mean that “public authorities have designated the 10 kilometer radius of the accident site as the radiation contaminated area,” therefore leading to avoidance of transactions.

The view provided in the Interim Confirmation and reconfirmed in the JCO Final Report that “business damages” would be included in “nuclear damages” under the Nuclear Compensation Act and that their scope would be determined based on the theory of adequate causation can be described to have greatly influenced Case 4 through 7 which dealt with damages attributable to harmful rumors from the JCO criticality accident. Court rulings for both cases were based on the views presented in the JCO Final Report. Case 7 dismissed claims on the grounds that there was no evidence of rejection of transactions. Cases 4, 5 and 6 also adopted the view presented in the JCO Final Report. Cases 4 and 5 affirmed the presence of a link of adequate causation with “business damages” within the determined temporal and spatial scope. (In Case 5, the court found that temporary payments had been made in excess and ordered reimbursement, and therefore the judgment made regarding adequate causation may be referred to as *obiter dictum*.) Case 6 indicated the timing of the confirmation of and report on safety to determine the temporal scope in accordance with the JCO Final Report and dismissed claims on the grounds that no link of adequate causation could be found in a price decline which occurred after that.

The JCO Final Report and the series of court cases regarding the JCO criticality accident which adopt its views acknowledge the

presence of a link of adequate causation between the accident and the business damages incurred during the period up to the point in time when the understanding that there are no risks attributable to the criticality accident. The largest issue here is that despite the fact that the party to which the accident is attributable (“attributable party”) did not actually pose danger to surrounding areas, it was held liable for damages attributable to harmful rumors which had occurred before safety was confirmed and it became widely understood on the grounds that the general public had faced extraordinary fear towards radiation risks and that it had created the fact that became the target of harmful rumors of danger. The question is whether it is reasonable to hold not the “source of harmful rumors”²⁷⁷ but the party that created the fact that became the target of the sense of fear and danger on the grounds that the damages had aroused from the sense of fear and danger faced by the general public, regardless of the fact that there was actually no danger upon life, health or property. Even if it were appropriate for the public to embrace such sense of fear and danger, the costs in question were required for avoidant behavior based on precautionary risk assessment; with that, would it be appropriate to instantly hold the attributable party liable under tort law, which is mandated to compensate for resulting actual damages? The author finds that some limitation would be required in order to affirm compensation for avoidant behavior costs. The approaches taken towards damage compensation in precautionary claims for the violation of a real right and action for preservation of possession may be referred to.

Another issue to consider is that the scope of “business damages” included in “nuclear damages” could expand infinitely, and hence limits should be drawn. The theory of adequate causation is employed to determine the scope of damage compensation in the JCO Final Report and subsequent court cases, but it is doubtful whether it can be applied to appropriately demarcate the scope of “business damages.” “Business damages” include both “indirect damages” and “damages attributable to harmful rumors,” and as aforementioned, according to precedents and many scholarly theories, the scope of compensation for “indirect

²⁷⁷ The case introduced in footnote 275 is in support of this view.

damages” cannot be appropriately demarcated based on the theory of “adequate causation”. In terms of “damages attributable to harmful rumors,” it is strongly doubtful whether the temporal and spatial factors of adequate causation can be rationally demarcated as a sense of fear or danger is correlated with individual expectations towards safety and such emotions are influenced by information on risk, and also because in the current IT environment, information can be widely disseminated and is often not transient but rather causes repercussions into the future.

Damages attributable to harmful rumors about contamination by dioxins was disputed in Case 3, which arose after the JCO criticality accident. The court ruled that, because the concentration level of dioxins had exceeded environmental standards and the Ministry of the Environment stated in its declaration of safety that a comparatively high concentration of dioxins (fivefold of environmental standards) had been detected and that fisheries products from downstream should preferably not be eaten, a link of adequate causation with business damages including declined sales had been present. Therefore, in Case 3, the court found a link of adequate causation on the grounds that the safety declaration announced by the Ministry of the Environment included advice to avoid consumption of fisheries products. Nevertheless, although the advice to avoid fisheries products might have been provided by the Ministry of the Environment in a precautionary context, it is unlikely to have been based on adequate consideration of the extent and details of risks accompanying dioxin concentration levels five times the level of environmental standards. That said, employing recommendations made for the purpose of precaution, as standards for demarcating the scope of ex-post damages will unduly expand the scope of damage compensation. It is a well-known fact that precautionary measures may be taken even with a reasonable level uncertainty.

c) Compensation for “business damages” related to the TEPCO Fukushima accident

Guidelines for the compensation for damages caused by the

TEPCO Fukushima accident were set out in the Interim Guidelines on Determination of the Scope of Nuclear Damage resulting from the Accident at the Tokyo Electric Power Company Fukushima Daiichi and Daini Nuclear Power Plants (“Interim Guidelines”) by the Dispute Reconciliation Committee for Nuclear Damage Compensation (“Reconciliation Committee”) in August 2011. The Interim Guidelines provide the basic acknowledgement that in terms of the scope of nuclear damage, there is no reason to take the view that it should be especially different from the scope of damage in any standard claim in tort for damages, and that a nuclear operator is liable for the damage within the range for which one can recognize an adequate causation. Hence, damage is considered “nuclear damage” when it is judged, based upon “social convention”, to be logical and reasonable consequences of the nuclear accident. The JCO Final Report would then be referred to in order to determine the scope of damages to be compensated, taking into consideration the circumstances unique to the TEPCO Fukushima accident. The Interim Guidelines add that since it would be unfair to compel victims to provide strict evidence, while presumption to a reasonable extent would be required, an option would be to adopt a standardized calculation method or predetermined compensation amounts.

The Interim Guidelines provide that in areas in which instructions or requests to evacuate have been issued by the government (geographic scope), residents shall receive compensation for certain types of damage and individuals who formerly operated or currently operates all or part of a business (public or private) shall be entitled to compensation for certain types of business damage (including rumor-related damage). For workers with a place of work located within the geographic scope, the reduction in a worker’s salary resulting from incapability to engage in that work due to impossibility to continue business shall be recognized as damage warranting compensation. Given that determining an end date for damages will present difficulties under current circumstances, the Interim Guidelines state that a temporal scope will not be determined for the time being.

Seeking to determine the scope of damages to be compensated by

the nuclear operator based on the presence of adequate causation, the Interim Guidelines present criteria to judge reasonability based on social convention. However, the criteria provided is too abstract and thus does not promise to be functional in determining the scope of damages²⁷⁸. Only an extremely generalized geographic scope is provided by the Interim Guidelines as a concrete criterion for judging whether there is a reasonable relationship between the accident and the damage, and moreover, no temporal scope is given, with a note that it will be examined at a future time as necessary. Furthermore, the requirements to present evidence of damage have been mitigated. Such guidelines pose a large risk of unlimitedly expanding the scope of damages that nuclear operators are liable for and therefore may have “opened the flood gate,” as will be discussed below.

d) Overseas debate concerning pure economic loss

The debate on pure economic loss, which include indirect loss and damage induced by harmful rumors²⁷⁹, may provide useful insight in reflecting on the Japanese government’s response to the Fukushima nuclear accident. The following paragraphs will overview the ongoing debate in the U.S. and Europe.

In Germany, the U.K. and the U.S. where Common Law is practiced, compensation for negligence torts is only recognized to an extremely limited extent.

The German Civil Code (GBG) Section 823 Paragraph 1 stipulates that “a person who, intentionally or negligently, unlawfully injures the life, body, health, freedom, property or another right of another person is liable to make compensation to the other party for the damage arising from this.” This would seem to protect a wide range of rights but many precedents and scholarly theories regard only the infringement of absolute rights, which does not include pure economic loss, to be

²⁷⁸ Issues regarding compensation of individuals who have evacuated voluntarily have arisen.

²⁷⁹ In the U.S., liability on the part of the source of harmful rumors is considered in terms of defamation whereas the liability of the causer of the fact is addressed as a case of pure economic loss. See Travis M. Wheeler, Negligence Injury to Reputation: Defamation Priority and the Economic Loss rule, 48 ARIZONA L. REV. 1103 (2006), at 1117-27

covered by this provision. Hence, the provision, in principal, cannot be applied for pure economic loss.²⁸⁰ Pure economic loss can only be compensated for under Section 823 paragraph 2, Section 824 and Section 826, which cover torts characterized by high illegality as in criminal acts.

In the U.K., even after the *Hedley Byrne v. Heller* case²⁸¹ which expanded the scope of liability for pure economic loss resulting from negligence on the part of possessing person with special skills, an intentional act of infringement is required for tort liability to be recognized for pure economic loss, with the exception of liability on the part of a financial institution that has provided false credit information, professional liability or misrepresentation on the part of those with special skills, such as accountants, or cases in which incomplete services have been provided. The U.S. has a similar regime to that of the U.K.²⁸²

The French Civil Code Article 1382 provides that “any act whatever of man, which causes damage to another, obliges the one by whose fault it occurred, to compensate it” and does not precisely define the legal interests to be protected. Therefore, it does not exclude pure economic loss, for which compensation is recognized if adequate causation can be acknowledged between the act of infringement and damage caused. However, precedents and scholarly theories differentiate the criteria for acknowledging the presence of adequate causation²⁸³ depending on whether the decision to be made is on the recoverability of damages in an infringement of life, body or property of others or in a case of pure economic loss. Hence, in the latter case, the scope of liability is often limited when judging the directness of the

²⁸⁰ Mauro Bussani & Vernon Palmer, *The Liability regimes of Europe: their facades and interiors*, in PURE ECONOMIC LOSS IN EUROPE (Mauro Bussani & Vernon Valentin Palmer eds., 2003) at 218. See also Helmut Koziol, *Recovery for Economic Loss in the European Union*, 48 ARIZONA L. REV. 871 (2006), at 874

²⁸¹ *Hedley Byrne & Co. Ltd. v. Heller & Partners Ltd.* [1964] AC 465

²⁸² In the U.S., discussions regarding pure economic loss have been furthered in the drafting of the restatement of torts related to transactions. The current status of discussions are elaborated in ARIZONA LAW REV. vol.48.

²⁸³ In French tort law, it is interpreted that damages will only be awarded if they are a “certain and direct (certain et directe) consequence” as in contractual torts (Civil Code Article 1151).

consequences²⁸⁴. For example, the French Court of Cassation dismissed a claim filed by concert organizers against the offender that caused a singer's injury for the compensation of damages resulting from the cancellation of a concert that the singer had been scheduled to sing in, on grounds that the damages were not "direct" consequences²⁸⁵. As the judge is granted considerable discretion in determining the causal relationship between an event and said damage in France, each case is addressed differently; and hence, no explicit rules have been set regarding pure economic loss.

Austrian law takes a similar approach to French law. The Austria General Civil Code (ABGB) Section 1295 provides that anyone who intentionally or negligently causes damage to another person shall be liable to compensate for the loss suffered, and does not limit the scope of legal interests protected under the provision. However, according to precedents and scholarly theories, pure economic loss shall be recovered only when stringent requirements including the presence of intention are met and not merely as negligence tort²⁸⁶.

To briefly discuss legal regimes in other countries²⁸⁷, Article 6:162 of the Dutch Civil Law includes not only absolute rights and personal rights but also quasi-real rights such as right of use and right of usufruct among "rights" to be recovered under tort law; and hence, it stands in between German law and English and French law. Sweden and Finland adopt a rule similar to that of Germany that pure economic loss resulting from criminal tortious acts shall be repaired. East and Central European countries take a stance close to that of French law, but of the three Baltic states, Estonia, takes an approach resembling that of Germany.

²⁸⁴ In France the judge is granted considerable discretion in determining the causal relationship between an event and said damage; and hence, the judgment of the "directness" of the consequence is varied among cases. In this sense, French law tends to be more lenient towards the recovery of pure economic loss compared to German and other Common Law regimes.

²⁸⁵ Civ. 2e 14 November 1958, Gaz. Pal. 1959.1.31

²⁸⁶ Koziol, *supra* note 13, at 875

²⁸⁷ See generally Prepared by Christian von Bar, Principles of European Law Ed. by Study Group on a European Civil Code, NON-CONTRACTUAL LIABILITY ARISING OUT OF DAMAGE CAUSED TO ANOTHER (PEL LIAB. DAM) (Oxford U.O., 2009) at 233-4

It should also be noted that there is no common understanding of “pure economic loss” shared among all countries²⁸⁸. Lawyers in the U.K., Ireland, Scotland, Sweden and Finland define “pure economic loss” to be loss unaccompanied by tangible damage to body or property. German, Austrian and Portuguese lawyers define “pure economic loss” as loss not due to the violation of absolute rights, and consequently exclude some forms of losses that are typically included among pure economic loss in other regimes. Lawyers in France, Belgium, Luxemburg, Spain and Hungary are unfamiliar with the very concept of “pure economic loss”.

While there is no single approach commonly adopted by all countries regarding the same issue, it is a widely known fact that German law has applied or expanded on contractual liability²⁸⁹ and it should be noted that English law has drawn on concepts such as “breach of duty” in negligence and “voluntary assumption of liability”. These legal interpretations have enabled the recovery of pure economic loss suffered by businesses as a result of misinformation provided to a trade partner by a financial institution with which it had no transactions, as well as those suffered by victims of misinformation provided by accountants and other experts to third parties²⁹⁰. However, the general tendency is to limit the extent and scope of pure economic loss to be compensated, in particular in terms of indirect damage.

The Principles of European Tort Law drafted by the European Group on Tort Law (EGTL) provide in Article 2:102, paragraph 1 that “The scope of protection of an interest depends on its nature; the higher its value, the precision of its definition and its obviousness, the more extensive is its protection.” Paragraph 2 stipulates that absolute rights enjoy the most extensive protection; paragraph 3, that property rights, including those in intangible property, are granted extensive protection; and paragraph 4, that “protection of pure economic

²⁸⁸ Ibid.

²⁸⁹ Christian von Bar, *The Common European Law of Torts vol.2* (Japanese translation by Atsumi Kubota) at p175.

²⁹⁰ Susanne Kalss, *The Liability of Banks*, in PURE ECONOMIC LOSS (Willem H. van Voom, Helmut Koziol & Christian A. Witting eds., 2004) at 77. See also Koziol, *supra* note 13, at 872

interests or contractual relationships may be more limited in scope. In such cases, due regard must be given especially to the proximity between the actor and the endangered person, or to the fact that the actor is aware of the fact that he will cause damage, even though his interests are naturally valued lower than those of the victim.”

The largest reason for excluding pure economic loss from recoverable damages due to negligent torts or for limiting the scope of recovery is understood to lie in the fact that it is extremely difficult to demarcate the limits of pure economic loss and that its acknowledgement may induce a flood of claims for compensation (Flood Gate Argument). This would be the equivalent of opening a can of worms (or Pandora’s box of claims), burdening persons who have committed a tortious act with unforeseeable and unlimited liability, and consequently infringing upon an individual’s freedom of action²⁹¹²⁹². Given that even under French law, where the concept of pure economic loss is non-existent, the scope of its recovery is limited based on the theory of directness in causal relationship; and therefore, it is undeniable that there is indeed some common understanding among different legal regimes.

Other views point out that comparison of the value of life, body, health and property rights, including proprietary rights, and the value of pure economic loss has also led to the limitation of its recovery²⁹³.

²⁹¹ While the Flood Gate Argument is often understood to be based on concerns that the courts will be flooded with claims, it more importantly addresses the possibility of burdening the person who has committed a tortious act with unlimited liabilities with no definition of a cutoff date or scope of persons to be compensated.

In the U.S., a leading case, *Robins Dry Dock & Repair Co. v. Flint*, 275 U.S. 303 (1927) ruled that pure economic loss, considered to be a form of indirect damage, cannot be recovered according to law of (negligent) torts. Judge Oliver Wendel Holmes’ explicit reasoning provided in the court decision has ruled all succeeding cases, which have denied the recovery of pure economic loss unaccompanied by physical damage to a person’s body or property. This reasoning was furthered by Judge Benjamin Cardozo in *Ultramares Corp. c. Touche*, 174 N.E. 441 (N.Y. 1931). Cardozo held that acknowledging liability would expose the actor “to a liability in an indeterminate amount for an indeterminate time to an indeterminate class,” which having been likened to a nightmare, is often referred to as “Cardozian nightmare.”

²⁹² Kozoil, *supra* note 13, at 877

²⁹³ Cf. Christian Witting, *Distinguishing Between Property Damage and Pure Economic Loss in Negligence: Personality Thesis*, 21 J. LEGAL STUD. 481 (2001).

e) Gulf of Mexico oil spill and pure economic loss: has the flood gate been opened?

The 1989 oil spill caused by the massive oil tanker Exxon Valdez which ran aground on a reef off the shore of Alaska aroused wide social interest regarding whether or not causers of the oil spill should be held liable for the economic losses (pure economic loss) suffered by fisheries businesses, restaurants serving seafood, and tourism agencies (collectively, “accident-related victims”). The accident was followed by what is considered to be the largest marine oil spill in history – by far larger in volume than the Exxon Valdez oil spill - which occurred in the Gulf of Mexico in 2010. The oil spill was caused by the Deepwater Horizon oil rig operated by an affiliate of BP, whose liability was questioned. The Deepwater Horizon oil spill was intensively discussed in legal spheres, whether economic loss, including damages induced by harmful rumors, suffered by accident-related victims would be recovered, and if so, that compensation amounts would be of an unimaginable scale ²⁹⁴ . Legal proceedings concerning damages resulting from the Deepwater Horizon oil spill are pointed in the direction of acknowledging the recovery of pure economic loss, therefore risking the opening of the “flood gate” debated in common law regimes. The case will become a touchstone of whether the flood gate argument did contain some reality or whether it had been founded on groundless fear. Hence, it may serve as important reference when considering business damages resulting from nuclear accidents in Japan.

Negligent tort liability for damages caused by oil spills had been recognized in the event that tangible damage had been imposed upon body or property, based on general maritime law ²⁹⁵, which is governed

²⁹⁴ It has been reported that commercial fishing operations have been banned in approximately one-third of U.S. territorial waters in the Gulf of Mexico, causing many fishery operators to lose their source on income. Furthermore, harmful rumors about fishery products from these waters pushed down the number of tourists to the entire Gulf of Mexico area, not limited to the area physically affected by the accident, thereby reducing the income of workers engaged in the tourism industry. *See* Andrew Davis, *Pure Economic Loss Claims Under the Oil Pollution Act: Combining Policy and Congressional Intent*, 45 COLUMBIA J. OF LAW AND SOCIAL PROBLEMS 1 (2011), at 2-4

²⁹⁵ In the U.K., where common law originated, general maritime law has evolved as a regime of rules and principles separate from general common law and is not contained by common law. The U.S. general maritime law has been derived from that of the U.K.. *See* Peter Crane, *TORT LAW AND ECONOMIC INTERESTS* (2d ed. Oxford 1996), at 278

by rules and principles different from common law. Like common law, it has not, in principle, recognized pure economic loss. However, some jurisdictions have adopted an exceptional rule to the general rule that commercial fishermen would be granted compensation for damages on grounds that they utilize fishery resources for subsistence and rely on them for income (“exclusionary rule for fishery operators”)²⁹⁶. The exclusionary rule for fishery operators is varied among different jurisdictions, where views are diversified regarding whether it should be a requirement for the “fishery operator” to have managed fishery resources, whether “fishery operators” would include fishery brokers and restaurants serving seafood and what would be included in losses to be compensated²⁹⁷.

In response to the Exxon Valdez oil spill, the U.S. adopted the Oil Pollution Act of 1990 (OPA)²⁹⁸, which prescribes the prevention of oil spills and the compensation of damages resulting from oil pollution, as well as the securing of safety and the comprehensive removal of oil and other hazardous substances. Lobbying activities by pressure groups such as fishery organizations largely impacted the legislation of OPA. Continuous debate on the compensation of damages resulting from oil spills caused by ships have led to the conclusion of several international agreements. Such trends could also have influenced the passing of the OPA.

OPA section 2702(b), paragraph (2), subparagraph (B) provides that “damages for injury to, or economic losses resulting from destruction of, real or personal property” shall be recoverable by a claimant who owns or leases that property, and subparagraph (C)

²⁹⁶ *Union Oil Co. v. Oppen*, 501 F.2d 558 (9th Cir. 1974) is referred to as the precedent recognizing “exclusionary rule for fishery operators.” However, in this case, the court simply ruled that economic loss suffered by fishery operators due to reduced fish catches are “reasonably foreseeable.”

²⁹⁷ Papers which study precedents in coastal states in the Gulf of Mexico and the Federal circuit court in details include: Benjamin J. Steinberg & Dwayne Antonio Robinson, *Making BP’s Blood Curd-Le: Duty, Economic Loss, and the Potential Cardozian Nightmare after Curd v. Mosaic Fertilizer*, 63 FLORIDA L. REV. 1245 (2011). *See also* John C.P. Goldverg, *LIABILITY FOR ECONOMIC LOSS IN CONNECTION WITH THE DEEPWATER HORIZON SPILL*, 18-22 (2010), *available at* <http://nrs.harvard.edu/urn-3:HUL.InstRepos:4595439>

²⁹⁸ 33U.S.C. §§2701-2761 (1990)

stipulates that “damages for loss of subsistence use of natural resources [...] shall be recoverable by any claimant who so uses natural resources which have been injured, destroyed, or lost, without regard to the ownership or management of the resources.” Subparagraph (E) of the same paragraph provides that “damages equal to the loss of profits or impairment of earning capacity due to the injury, destruction, or loss of real property, personal property, or natural resources [...] shall be recoverable by any claimant.” Subparagraph (B) is derived from general rules traditionally acknowledged under common law on the compensation of tangible damages, whereas subparagraph (C), generally covering all claimants who use or make profits based on natural resources for subsistence recognizes the core concept underlying exceptions for fishery operations related to pure economic loss. Given that the Robins case²⁹⁹, a precedent addressing pure economic loss, had not been considered at all in the legislation of subparagraph (E) and that its application is only discussed in the context of precedents after the Robins case that have recognized the exclusionary rule for fishery operators³⁰⁰, it remains unclear as to whether the intention of the subparagraph to extensively recognize pure economic loss. The ambiguity of “damages equal to the loss of profits or impairment of earning capacity due to the injury, destruction, or loss of real property, personal property, or natural resources,” especially represented by the phrase “due to” implies room for the compensation of even a wider scope of pure economic loss, extending beyond the exclusionary rule for fishery operators and risks unlimited expansion of the scope of recoverable damages³⁰¹. Although the OPA created new counts in place of those under general maritime law, it fails to reveal to what extent it has amended general maritime law and leaves the question open as to which precedents should be taken into

²⁹⁹ Robins Dry Dock & Repair Co. v. Flint, *supra* note 24

³⁰⁰ H.R. CONF. REP. NO. 653, 101st Cong., 2d Sess. 103. 103(1990), *reprinted in* 1990 U.S.C.C.A.N. 779, 781

³⁰¹ Antonio J. Rodriguez & Paul A.C.Jaffe, The Oil Pollution Act of 1990, 15 TUL. MAR. L. J 1 (1990), at 15. Some hold the extreme view that Section 2702(b)(2)(E) does not call for the integration of economic loss and physical damage. *See* Goldberf, *supra* note 30, at 18-22

consideration. Therefore, the interpretation of Section 2702 (b), paragraph (2) has been fought in several court cases – in particular, firstly whether pure economic loss could be recovered, and secondly, in the event that pure economic loss is recoverable, which criteria should be apply in determining the scope of victims that can claim compensation. It should be noted that the OPA sets upper limits to compensation amounts which should not exceed the sum of total removal costs and 75 million dollars per claimant per accident for coastal facilities excluding deep water ports or a total of 350 million dollar per accident for all coastal facilities, including deep water ports³⁰².

A claim for recovery of damages under the OPA was filed in 1992 by a plaintiff who had suffered business losses due to river pollution resulting from gasoline leakage from a ship collision in Michigan³⁰³. The federal district court, citing the Robins case, ruled that damage, as stipulated in OPA Section 2702(b), paragraph (2), subparagraph (E), is a “loss of profits or impairment of earning capacity from injury, destruction or loss of real or personal property or natural resources” but that the plaintiff had not claimed a “physical infringement of property interests,” and hence dismissed the claim. The court decision was in line with general maritime law, referring to the court ruling in the Robins case as a precedent which excluded pure economic loss from the scope of recoverable damages with respect to the exclusionary rule for fishery operators in mind. However, the ruling was succeeded by new interpretations that Section 2702(b), paragraph (2), subparagraph (E) does not exclude pure economic loss from recoverable damages and that holding the operator of the oil spill in question liable for the damages would not impose excessive burden upon it³⁰⁴³⁰⁵. Nevertheless,

³⁰² 33 U.S.C. §2704(a)(3), *et seq.* (2004)

³⁰³ *In re Cleveland Tankers, Inc.*, 791 F. Supp. 669 (E.D. Mich. 1992)

³⁰⁴ See eg. *Taira Lynn Marin Ltd. No.5, LLC v. Jays Seafood, Inc.*, 444 F.3d 371 (5th Cir. 2006); *Ballard Shipping Co. v. Beach Shessfish*, 32 F3d 623 (1st Cir. 1994); *Sekco Energy Inc. v. M/V Margaret Chouest*, 820 F. Supp. 1008 (E.D. La. 1993)

³⁰⁵ Goldberg, *supra note 30*, a 11-14 indicates, by presenting explicit examples, that depending on the interpretation of OPA Section 2702(b), paragraph (2), subparagraph (E), an extremely broad and diversified scope of recoverable damages could be defined.

instead of unlimitedly recognizing compensation, the court has applied different exemption clauses in order to deny the awarding of damage compensation.³⁰⁶

The Robins case ruled that an injured party may not recover economic loss damages unaccompanied by tangible damage but if this requirement were to be removed and liable parties of oil pollution were to compensate for pure economic loss under the OPA, the determination of the scope of recoverable damages will become a critical issue. Given the definition provided in OPA Section 2701 that "natural resources" include "land, fish, wildlife, biota, air, water, ground water, drinking water supplies," which in effect implies that almost everything is covered³⁰⁷, interpreting "due to" to simply represent a necessary condition (as in "no A, no B") then the economic loss resulting from "injury, destruction, or loss" could risk infinite expansion. However, few precedents relate to this point. Some precedents have introduced the concepts of "proximate cause" or "direct cause" in their attempt to draw the bounds of recoverable damages³⁰⁸, but have failed to explicitly define each concept, and hence, do not offer a compelling explanation of the context in which the scope of damage compensation was determined. Furthermore, although claims for compensation under the OPA require evidence of "real" loss of profits or impairment of earning capacity, individuals and business operators who have been forced to evacuate as a result of an oil spill cannot be expected to provide evidence of such "reality." There are concerns that if the requirement to present evidence is mitigated, the polluter would be held liable for a greater scope of damages³⁰⁹.

³⁰⁶ *In re Settoon Towing*, No. 07-1263, 2009 WL 4730971, at 3 (E.D. la Dec. 4, 2009) recognized the claim for compensation for economic losses arising from not being able to approach the drilling site during removal activities after an oil spill, but indicated that such claims might be deterred under federal maritime law.

³⁰⁷ Goldberg, *supra* note 30, at 19

³⁰⁸ *Sekco Energy Inc. v. M/V Margaret Chouest*, *supra* note 37 (Claims were dismissed on grounds that the oil pollution was not a "proximate cause" of the plaintiff's pure economic loss); *Gatlin Oil Co. v. United States* 168 F.3d 207 (4th Cir. 1999) (Claims for recovery of damages imposed upon the plaintiff's property as a result of fire caused by volatile gas from an oil leakage were dismissed on grounds that said damages were not a result of the oil leakage. The court ruling implied that the decision had been based on judgment of "direct cause.")

³⁰⁹ Goldberg, *supra* note 30, at 15

The Deepwater Horizon oil spill occurred in the abovementioned context, calling attention to how damages resulting from it would be recovered. On June 16, 2010, BP agreed with U.S. President Obama to implement prompt and fair compensation for damages whose recovery would be difficult to seek through legal action. For the purpose of prompt and fair compensation, and seeking also to save potential costs that would be required to address the large number of claims expected, BP waived its liability cap granted under the OPA and established the Gulf Coast Claims Facility (GCCF) as “an independent claims facility for submission and resolution of claims of Individuals and Businesses for costs and damages incurred as a result of the oil discharges due to the Deepwater Horizon incident on April 20, 2010,³¹⁰” on the premises that it would not set any caps upon compensation payments.

BP paid out an initial facility of 20 billion dollars to the GCCF and pledged to provide an additional 20 billion dollars if necessary³¹¹. A neutral and independent claims administrator was appointed by BP to process claims and request the GCCF payment of compensation awards³¹². The payment requests made to GCCF do not pursue the liability of BP; payments are instead determined pursuant to the compensation rules and procedures established by the claims administrator.

The compensation rules provide that eligible claimants are individuals and businesses that have incurred damages, including Removal and Clean Up Costs, Damage to Real or Personal Property, Lost Earnings or Profits, Loss of Subsistence Use of Natural Resources, or Physical Injury or Death, as a result of the oil spill. This is similar to what is stipulated in OPA Section 2702(b) paragraph (2)³¹³. However, it is unclear how compensation awards have actually been determined, perhaps inevitably due to the fact that settlements are inherently

³¹⁰ Gulf Coast Claims Facility, <http://www.gulfcoastclaimfacility.com/faq>

³¹¹ Jonathan Weismann & Guy Chazan, BP Agrees to \$20 billion Fund, WALL ST J. Jun 17, 2010 at 1: Press Release. BP. BP Forms Gulf of Mexico Oil Spill Escrow Trust (Aug. 9, 2010), *available at* www.bp.com/en/global/corporate/press/press-releases/bp-forms-gulf-of-mexico-oil-spill-escrow-trust.html

³¹² Gulf Coast Claims Facility, *supra* note 43

³¹³ *Ibid.*

privately negotiated. Filing a claim with the GCCF does not restrict the claimant from filing a lawsuit to pursue BP's legal responsibilities. However, the claimant may only receive payment from the GCCF on condition that the claimant will waive its right to seek damages of BP regarding the oil spill.

As the GCCF processed claims, thousands of individual claims and hundreds of class actions were filed with the federal district courts³¹⁴. On August 10, 2010, the Judicial Panel on Multidistrict Litigation issued a pretrial Transfer Order which effectively centralized all federal lawsuits arising from the oil spill, with the exception of collateral-related lawsuits, in the U.S District Court for the Eastern District of Louisiana. Judge Barbier sought collective judicial settlement by bundling all claims for economic loss and property damages and ordered for settlement negotiations to be held among concerned parties with Magistrate Judge Shushan serving as neutral mediator. Tortious settlement negotiations were held on a frequent basis in earnest until basic agreement was finally reached. On December 21, 2012, Judge Barbier granted final approval of the Economic and Property Damages Settlement Agreement and it was also decided that the GCCF's compensation program would be incorporated into the settlement compensation program.

An overview of the sections related to business damage in the order issued by Judge Barbier is provided below:

- (i) Geographic and temporal bounds: Louisiana, Mississippi, Alabama, and certain coastal counties in eastern Texas and western Florida, as well as specified adjacent Gulf waters and bays. Class members comprise individuals within the geographic area who have lived, worked, or owned or leased property in the area between April 20, 2010, and April 16, 2012, and businesses which have conducted activities in the area during that same time frame.
- (ii) Categories of loss or damage: (1) specified types of economic loss for businesses and individuals, (2) specified types of real property

³¹⁴ Michael L. Rustad and Thomas H. Koenig, *Parens Patriae Litigation to Redress Social Damages from the BP Oil Spill: The Latest Stage in the Evolution of Crimtorts*, 29 UCLA J. ENVTL. L & POL'Y 45 at 53, 72 (2011)

damage (coastal, wetlands, and real property sales damage), (3) Vessel of Opportunity Charter Payment, (4) Vessel Physical Damage, (5) Subsistence Damage, and (6) the Seafood Compensation Program. However, the class definition also contains specific exclusions, for example the Court and employees of BP. Other exclusions are based on the substantive nature of the business, such as financial institutions, certain types of funds, financial trusts, and other financial vehicles, gaming industry, insurance entities, oil and gas industry, defense contractors, and real estate developers). Also excluded are certain defined government organizations as well as persons or entities who have released their claims through the GCCF.

(iii) Limits to compensation payments: With the exception of the Seafood Compensation Program, there is no cap on the amounts that may be paid under the Settlement Agreement. The Seafood Compensation Program features a guaranteed \$2.3 billion fund; i.e., \$2.3 billion will be distributed to claims in this fund. Many damage categories are augmented by risk transfer premiums (“RTP”).

(iv) Calculation of compensation awards: The settlement is implemented by the Deepwater Horizon Court Supervised Settlement Program (“Settlement Program”). The Settlement Program calculates awards using public and transparent frameworks that apply standardized formulas derived from generally accepted and common methodologies. It uses a “before and after” method to calculate economic loss suffered by business operators. Specifically, Step 1 provides compensation for the reduction in variable profit between the Compensation Period and the Benchmark Period, and Step 2 provides compensation for increased profits that reasonably could have been expected to be generated in 2010 but for the spill. The Compensation Period in Step 1 is any period of three or more consecutive months from May through December 2010. For the Benchmark Period, the class member may choose to use from the selected months from 2009, the average of the selected months in 2008 and 2009, or the average of the selected months in 2007, 2008, and 2009. Step 2 accounts for lost growth potentially due to the spill. Up to a maximum of 12%, growth is calculated by considering an

assumed growth rate of 2% (General Adjustment Factor) and actual growth reflected in historical revenue trends prior to the spill (Claimant-Specific Growth Factor).

- (v) Overview of Settlement Program: The Settlement Program consists of Court-appointed claims administrator and his staff of 25 people. 3,200 people are employed throughout the country.
- (vi) Causation: Some business claimants must demonstrate that the spill caused their losses. In many other cases causation is presumed. The documents required to support economic loss can be sufficiently met by accounts and other documents that businesses keep in the ordinary course of business.

Based on the abovementioned conditions for settlement, the concerned parties reached final agreement and entered the implementation phase. However, the ambiguity of criteria for processing claims led to the awarding of large payments for non-existent damages³¹⁵, and concerns that the funds paid out by BP would not be enough to cover all compensation payments. BP appealed to the New Orleans appeals court in demand of a more explicitly defined criteria for processing claims and temporary suspension of the implementation of the settlement until they had been made explicit. On October 2, 2013, the New Orleans appeals court ruled in favor of BP and ordered the clarification of claim processing criteria and their appropriate application³¹⁶.

The reality of payouts for damages arising from Deepwater Horizon oil spill imply that in the event that a framework does not conform to the rule of excluding pure economic loss from the scope of recoverable damages, it is important to set a cap on compensation payments in order not to allow the liable party to be obligated to repay endless chain of claims. If a cap is not to be set and the scope of recoverable damages is to be determined by judgment of the existence of a causal

³¹⁵ A construction company located 200 miles inland from the coast was awarded 9.7 million dollars, which let it earn the highest profits in the company's history in 2010 when the oil spill occurred.

See www.telegraph.co.uk/finance/newsbysector/epic/bpdot/10351827/BP-wins-victory-in-battle-to-cap-Gulf-oil-spill-settlements.html

³¹⁶ Ibid.

relationship, based on “social convention” or “foreseeability,” the factors of “geographic scope” and “temporal bounds” should be clearly defined and the compensation awards for recoverable damages should be strictly calculated. If this cannot be done, the funds required for compensation will surge unlimitedly and the “flood gate” will be opened. BP’s appeal and the Court’s temporary injunction imply that such circumstances are bound to happen. When a cap is set, payout procedures should be designed to be similar to bankruptcy procedures in order to keep a “first come first serve” system from hindering the prioritized recovery of damages suffered by those in high need of protection.

f) Environmental damage

If natural elements constituting the environment such as atmosphere, water and soil are violated by human activity, the violator is accountable for his action on the grounds of tort liability if there is an infringement upon a private individual’s rights or legally protected interests. However, in the absence of any infringement upon the rights or legally protected interests of a private individual, it becomes difficult to recover the violated environment; and hence, the emergence of the concept of “environmental damage” or “environmental liability.”

Under Japan’s Water Pollution Control Law and the Soil Contamination Countermeasures Act, the polluter is held liable for clean-up, and must therefore bear the expenses. However, these laws do not comprehensively enable the remedy of all environmental damages and can only be applied when the environmental components governed by the respective laws have been infringed upon. Furthermore, private individuals cannot directly file claims for the recovery of environmental damages under these laws, as environmental elements are public benefits and do not constitute private rights or interests. Hence, the laws provide for action on the part of national and local governments, instead of private individuals.

Leading overseas examples of liability for environmental damages include the U.S.’s Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), commonly known as the

Superfund Act and Directive 2004/35/EC of the European Parliament and of the Council of 21 April 2004 on environmental liability with regard to the prevention and remedying of environmental damage (“Environmental Liability Directive”)³¹⁷. The OPA, as abovementioned, also stipulates the liability for removal costs for environmental pollution induced by oil spills. The following paragraph will provide an overview of the Environmental Liability Directive³¹⁸.

The Environmental Liability Directive obligates member countries to legislate domestic laws in accordance with the Directive, pointing to two basic rules: (i) an ecological damage³¹⁹ is legally relevant damage, but (ii) not legally relevant damage to the individual in the sense that each citizen can claim reparation for it. Environmental impairments may, depending on how it is viewed, also infringe upon individual rights to the environment. However, in the context of damage compensation (monetary compensation) law, environmental impairments are only recoverable in their capacity as impairments of a legally protected interest of an individual. Therefore, recital number 14 to the Directive which reads, “This Directive does not apply to cases of personal injury, to damage to private property or to any economic loss and does not affect any right regarding these types of damages”, explicitly states that only public authorities can claim compensation for ecological damage. Incorporating this, Article 3(3) of the Directive specifies that “without prejudice to relevant national legislation, this Directive shall not give private parties a right of compensation as a consequence of environmental damage or of an imminent threat of such damage.” Based on this, Article 8 only grants the right to seek recovery of costs to competent authorities, and not to private parties.

The Principles Of European Law: Non-Contractual Liability Arising

³¹⁷ Refer to Niimi, Ikufumi (2012) Kankyo risk / songai to houteki sekinin (Environmental risk/damage and legal responsibility). *Kankyohoutaikei*. Shouji Houmu p85-

³¹⁸ German and French debates leading to the establishment of the EU directive are introduced in Yoshimura, Ryoichi (2010) Kankyo songai no baisho: Kankyo hogo ni okeru koushi kyoudou no sokumen (Compensation for environmental damage: public-private cooperation in environmental protection). *Ritsumeikan Hougaku* vol. 2010 5-6 p1769-

³¹⁹ The Environmental Liability Directive Article 2(1) defines environmental pollution to be substantially impaired natural elements constituting the environment, such as air, water, soil, flora and fauna, and environmental liability to be the bearing of costs incurred in restoring the elements.

Out Of Damage Caused To Another (“PEL Liab. Dam”), prepared by the Study Group on a European Civil Code established under the leadership of Christian von Bar states in Article 2:209 that environmental liability as defined in the Environmental Liability Directive is one of private law and that the polluter bears civil liability for damages (in terms of pollution removal costs) payable to the concerned authorities who are responsible for restoring the environment³²⁰.

4. Conclusion

It has been made clear through experiences of compensating for damages resulting from oil spills in the U.S. that it is extremely difficult to determine the scope of recoverable damages based on the “adequateness,” “proximity” or “directness” of causation instead of adopting the concept under German tort law and common law to judge whether compensation should be awarded depending on the character or type of right or interest violated. The American experience has also revealed that there are risks of impairing the liable party’s freedom of action as a result of being exposed to floods of claims for compensation. The scope of compensation for nuclear damages in Japan are to be determined according to whether or not adequate causation can be acknowledged, but given the ambiguity of criteria for judging the “adequateness,” Japan is bound to make the same mistakes as the U.S..

Furthermore, the effects of tort liability and the details of liability for damages imply limits in terms of remedying the damages suffered by victims of a nuclear accident. Under the principle of monetary

³²⁰ Study Group on a European Civil Code (2009) *Non-Contractual Liability Arising Out Of Damage Caused To Another*, p529-30 (Oxford U Press) (“*Pel Liab. Dam*”). However, while environmental interests are considered legally protected public interests and not private legally protected private interests, no explicit explanation is provided on how the infringement of environmental interests can constitute “civil liability.” It states that the critical point is that the prerequisites for a claim for damages and the defenses to it follow private law rules, which is believed to mean no more than that environmental impairment cases are addressed under the jurisdiction of civil courts. It could also be interpreted to include the idea that concerned authorities can claim compensation for damages without special legislation, but this would complicate explanation of the Environmental Liability Directive’s order to member countries to transpose the Directive into domestic law.

compensation, the liable party must recover in the form of money the legal interests infringed by tortious actions, and damage is estimated based on market price. When there has been an infringement upon land, the damage is represented by the costs required to restore the land, and in the event that restoration is not possible or restoration costs exceed the market value of the land (economic incapability), the market value of the land is presumed to be the value of the damage. When damage has been imposed upon a house, the damage is represented by the costs required to repair the house, and in the event that repair is not possible or repair costs exceed the market value of the house (economic incapability), the market value of the house is presumed to represent the value of the damage. Market value is used as the value of damage based on the reasoning that if the equivalent can be procured from the market for a certain price, then further costs should not be spent restoration or repair. Therefore, under the principle of monetary compensation, victimized residents of affected areas who seek to rebuild their livelihood in a new location may not be able to live on the same area of land as their original home if the market price of the new land is more expensive than that in affected areas. Also, houses will only be evaluated as old housing and will never amount to enough money to build a new house of the same floor area. Hence, tort law fails to compensate the costs required to reinstate the livelihoods of evacuees.

In order to make the reconstruction of livelihood a realistic option, a new law founded on a concept different from damage liability needs to be legislated. A new legislation should be sought for the purpose of reinstating the livelihood of victims of the nuclear accident, taking into consideration existing laws such as the Land Expropriation Act, which incorporates the recovery of the livelihood of parties whose land has been expropriated.

Again, it is unlikely that the recovery of business loss and damage induced by harmful rumors is assumed under tort law. The compensation of such damages would infinitely extend the scope of tort liability and impair the freedom of action, a fundamental right. If such damages were to be recovered under tort law, the bounds of liability

must be clearly defined, but drawing limits to compensation amounts based on adequate causation is, in reality, extremely challenging in a major nuclear accident.

If tort law were to recover business loss, it would have to provide compensation for such loss equal treatment as that provided for damage induced upon body and property. This would not pose any problems if the liable party possessed unlimited funds, but when the amount of compensation payments available is limited, the equal treatment of business loss and damages induced by harmful rumors and damages caused by infringement of body and property may lead to unjust results. This is because such procedures would ignore the given order of priority among rights and legal interests, determined according to their importance. A new legislation, not governed by tort law, should be formulated in order to avoid such injustice and pursue the recovery of damages in conformity with the priority of legally protected interests.

Not only is tort law incapable of recovering the costs required to restore the livelihoods of evacuees, it is not mandated to reconstruct the social infrastructure and communities which are indispensable in sustaining life. Hence, new legislation, distinct from tort law, is strongly called for in this context as well. Furthermore, because the environment is a public good, environmental impairment cannot be addressed under tort law, which protects private rights and interests; and therefore the polluter cannot be naturally expected to shoulder removal costs unless new laws are legislated. It should also be noted that additional legislation is required for the compensation of environmental impairment.

<Court rulings regarding damages attributable to harmful rumors>

[Case 1] Tokyo District Court, February 1, 2013 LEX/DB25510869 (dismissal of appeal): Regarding claims for 22 million yen in property damage and business damage on the grounds that merchandise (masks) were returned and merchandise inventory could not be sold due to harmful rumors resulting from the accident at the Fukushima Daiichi Nuclear Power Plant, the court ruled that given no submission of

objective evidence such as tax return statements, profit and loss statements and sales books, the occurrence of damages could not be proved.

[Case 2] Tokyo District Court, January 21, 2013 LEX/DB25510198 (partial acknowledgement; however, damages induced by harmful rumors were not acknowledged): Regarding claims for 18 million yen worth of lost profits due to disrepute caused by harmful rumors of employees suddenly resigning from work, the court ruled that there was no evidence to provide grounds to attribute decreased sales to harmful rumors.

[Case 3] Yokohama District Court, July 27, 2006, *Hanrei Jiho* 1976-85, *Hanrei Times* 1254-232 (partial acknowledgement): Regarding claims for business damages caused by decreased whitebait sales and cancellation of beach seining tours due to nationwide news coverage of dioxin emissions from the exhaust gas cleaning facility of a waste incinerator that resulted from the improper connection of the facility's water distribution pipe and rainwater pipe, the court ruled that there was a link of adequate causation with business damages including declined sales, based on considerations that although the news coverage was inaccurate, most of the coverage was appropriate, that dioxins of concentration levels exceeding environmental standards were detected downstream of the rainwater path in which the dioxin leakage occurred and these concentration levels were high enough to drive consumers into refraining from purchases and hesitating to participate in beach seining tours, that sales fell far below average sales after the news coverage and thus the decline in sales was obvious, and that the declaration of safety made by the Ministry of the Environment on May 31 stated that "because a comparatively high concentration of dioxins have been detected, it would be preferable not to drink it.". "Comparatively high concentration" refers to an approximately fivefold concentration of environmental standards.

[Case 4] Tokyo District Court, April 19, 2006, *Hanrei Jiho* 1960-64 (partial acknowledgement): Regarding claims for damages suffered by a *natto* (fermented soybeans) manufacturing company whose manufacturing plant was located within the in-house evacuation area, due to a decrease in sales and the deterioration of employee morale and corporate attractiveness caused by risk-related concerns which arose among customers and retail stores as a result of the accident, the court ruled that “although it is acknowledged that there are no health impacts attributable to the release of radioactive substances and radiation in the in-house evacuation area covering a 10 kilometer radius of the site of the criticality accident and this has already been covered in some newspapers at an earlier time; that from October 1 -5, 1999, immediately after the criticality accident, Ibaraki Prefecture conducted studies on the safety level of agricultural, forestry and fisheries products, water quality and processed food, and announced that no impacts from radiation and radioactive substances were found; that after October 6, the Government and the Japan Agricultural Cooperative Ibaraki-chuo launched public relation campaigns to announce the safety of the area; given that nuclear accidents are accompanied by invisible risks including the release of radioactive substances and radiation, that the criticality accident in question is a grave incident that caused casualties, and that it had been highly publicized by the mass media promptly after the accident (The newspaper article (exhibit A27) submitted as evidence featured the graveness of the criticality accident far more extensively compared to the article that covered its safety, and it can therefore be assumed that a strong impression of the accident’s graveness was communicated to general readers.), regardless of the post-accident confirmation of the safety of processed food including the plaintiff’s products made in Ibaraki Prefecture and the promotion of public relation campaigns to that effect, it is a commonly acknowledgeable state of mind of retail stores which represent consumers and consumer trends to be disinclined to purchase *natto* products of which the headquarter factory located within the 10-kilometer radius in-house evacuation area is labelled as “manufacturer” and to try to avoid selling them; and that

the decline in sales of *natto* products manufactured by the plaintiff should be recognized as damages caused by the criticality accident in question to the extent that a link of adequate causation can be acknowledged between the damages and the criticality accident in question.” Hence, damages attributable to harmful rumors were acknowledged for a period of five months after the accident.

[Case 5] Tokyo District Court, February 28, 2006, *Hanrei Times* 1207-116 (main lawsuit dismissed, countersuit claims partially acknowledged): Regarding a claim for damages suffered by a *natto* manufacturer that manufactures 67 percent of its total sales at a factory located within the evacuation area of the Tokaimura criticality accident, on the grounds that *natto* sales had declined due to harmful rumors resulting from the accident, the court ruled that “although according to the authorized facts, it is obvious that the plaintiff’s *natto* products have not been affected in any way by physical causes such as radiation in the criticality accident in question (and both parties are in agreement on this point), from the perspective of national livelihood, as nuclear power became a common source of the energy supply, it became widely acknowledged that once nuclear accidents such as the Chernobyl accident occurred the consequences would be widespread and grave, and given the impacts of the *Daigo Fukuryu Maru* accident (an accident in which the *Daigo Fukuryu Maru* (*Lucky Dragon 5*) was exposed to nuclear fallout from a hydrogen bomb test conducted on Bikini Atoll in the Marshall Islands) and the atomic bombing experience at the end of World War II, Japanese citizens tend to be, so to say, very sensitive to nuclear issues, nuclear power and radiation, and therefore, even though the criticality accident in question has not imposed any physical effects on the products themselves, it can be easily imagined that consumers in general, based on the fact that the criticality accident in question occurred in Ibaraki Prefecture, would be concerned that not only vegetable and fisheries products produced in Ibaraki Prefecture but also products manufactured or processed in the prefecture might be subject to grave risks of radioactive contamination and would be disinclined to purchase the abovementioned products and

temporarily refrain from buying them in response to such concerns.” “It is acknowledgeable that damages attributable to harmful rumors, in terms of a decline in sales of the *natto* industry as a whole, had occurred due to consumers refraining from purchasing *natto* products as a result of the criticality accident in question, and therefore, it can be said that to a certain extent there is a link of adequate causation between the occurrence of the criticality accident in question and the decline in sales in the *natto* industry as a whole damages.” “Considering the consumers’ state of mind regarding the issue in question, as well as the circumstances, including the actions taken by Ibaraki Prefecture, the Government and the Accident Investigation Headquarters under the Science and Technology Agency and the news coverage regarding the damage to *natto* products attributable to harmful rumors, even if the abovementioned declining trend in the plaintiff’s *natto* product sales is found to continue, the period of time that consumers in general are likely to repeatedly refrain from purchasing *natto* products including those manufactured by the plaintiff, or the period of time that can generally acknowledged to be foreseeable, would appropriately be acknowledged to be the period after Ibaraki Prefecture and the Government declared the safety of agricultural, livestock and fisheries products and processed food products, damages to *natto* products attributable to harmful rumors became less of an issue in newspapers, and explanations of the accident were lectured to local residents on November 13 and 14 to the point in time when the appropriate time required for customers in general to fully understand the actual state of the criticality accident in question is acknowledged to have passed, that is to say, from the occurrence of the criticality accident in question until November 2009.” The court found that temporary payments had been made in excess and ordered reimbursement.

[Case 6] Tokyo District Court, September 27, 2004, *Hanrei Jiho* 1876-34, *Hanrei Times* 1195-263 (dismissed): Regarding claims for damages suffered by a housing developer on the grounds that land could not be sold at the predetermined price because land prices declined due to the Tokaimura criticality accident, the court ruled that there were no

grounds to exclude pure economic loss and acknowledged that the company had closed the contract after lowering by more than 20 percent the sales price of the land which had been predetermined in August 2001, but found that “the land in question had already been scheduled to be offered for sale at the time of the criticality accident in question, and therefore, if the criticality accident in question raised awareness among the residents of Tokaimura of the risks of radioactive contamination on the land in question and of risks of the defendant causing another similar accident, and the price of the land in question declined as a result, the declining of prices could be referred to as damages connected to the criticality accident in question with a link of adequate causation, but if the criticality accident in question renewed their awareness of general risks generated from the very presence of a nuclear facility instead of making them aware of risks arising from the presence of the defendant, the Tokai Plant, and if this was main cause of the decline in prices, the risks generated from the very presence of a nuclear facility did not change before and after the criticality accident in question, and therefore, no link of adequate causation can be found between the criticality accident in question and the decline in prices of the land in question.” “Regarding the impacts of the criticality accident in question, according to the facts found to present, including the affirmation of safety based on tests conducted by Ibaraki Prefecture and its announcement in October 1999 and the revocation of the defendant’s permit to process uranium fuel on March 28, 2000, even if the decline of land prices in Tokaimura, including the land in question, which occurred after the criticality accident in question, could be attributed in part to risks of radioactive contamination of the land in question as a result of the criticality accident in question and to risks that the defendant might cause a similar accident again, these concerns are found to have been dispelled by March 2001 when the land in question had been scheduled to be put on the market or by October when the land in question was actually offered for sale.” “Even if the price of the land in question had been influenced by any remaining effects of the criticality accident in question, it is assumed that such effects had aroused from renewed

awareness of general risks generated from the very presence of a nuclear facility, and therefore, the damages are not found to be linked with adequate causation to the criticality accident in question.”

[Case 7] Mito District Court, June 24, 2003, *Hanrei Jiho* 1830-103 (main lawsuit dismissed, countersuit claims partially acknowledged): Regarding claims for damages suffered by a fisheries processing and distributing company on the grounds that it was forced to incinerate its products, which were rejected due to the Tokaimura criticality accident, the court dismissed claims because there was no objective evidence of rejection of products.

[Case 8] Kanazawa Branch Court, Nagoya High Court, May 17, 1989, *Hanrei Jiho* 1322-99, *Hanrei Times* 705-108 (dismissal of appeal): Regarding claims for damages suffered by fish market intermediaries on the grounds that seafood sales dropped due to harmful rumors resulting from the leakage of radioactive substances from Tsuruga Nuclear Power Plant, the courts ruled that “the area contaminated by radiation leakages due to this accident is limited to Urasoko Bay, and moreover, radiation has been detected only in gulfweed, common mussels, sea cucumbers and horned turban shells, and in no other fisheries products, and the radiation doses detected in the aforementioned products is low enough that the human body will not be affected even if they are continuously eaten every day, and the accident ultimately had little effect on edible fisheries products caught in Tsuruga Bay; and therefore, it is appropriate to find the fisheries products caught in Kanazawa which are handled by the plaintiffs had naturally not been affected by the accident.” “The court finds that given the announcement and news coverage of this accident, wholesale market in Nagoya, Tokyo, Osaka, Kyoto, Kobe, Kanazawa and Maizuru consecutively instructed intermediaries to voluntarily refrain from shipping fisheries products from Tsuruga and Fukui Prefecture from April 19, 1981; and that despite the announcement on April 19 by Tsuruga City based on analysis by the Fukui Prefectural Institute of Public Health that fisheries products from Tsuruga Bay were safe,

followed by an announcement by Fukui Prefecture on April 20, some wholesale markets outside Fukui Prefecture retained the voluntary refrain from shipping the products in question; and although the Fukui Prefectural Fisheries Cooperative Association visited wholesale markets outside Fukui Prefecture to request that the voluntary refrains be lifted on April 21 and wholesale markets outside Fukui Prefecture were lifted their calls for voluntary refrains by April 23, a severe price decline and weak trade volume of fisheries products continued and Japanese inns and bed and breakfasts in tourist destinations in the entire Tsuruga Bay area were seriously impacted, experiencing successive cancellations during this period and even afterwards.” “The court finds that the accident caused customers to refrain from purchasing fisheries products from Tsuruga Bay, inducing impacts caused by declining prices. However, it cannot find that customers were caused to refrain from purchasing fisheries products from Kanazawa, caught off the coast of Ishikawa Prefecture.” “Given the severe price decline and weak trade volume of fisheries products from Tsuruga Bay which occurred as a result of the announcement and media coverage of this accident, in the event that radiation leakage occurs in Urasoko Bay, located in Tsuruga Bay, it can be commonly acknowledged that the anxiety in consumer minds towards the possible risks would cause them to want to avoid purchasing seafood caught in Tsuruga Bay, even if the radiation leakage measurements were within a safe level and this information was officially announced; and therefore, the damage suffered by concerned parties as a result of decreased sales of fisheries products from Tsuruga Bay should be considered damage connected to a certain limit by a link of adequate causation with the accident.” “Although a partial decline in sales - not necessarily an explicit effect of the accident - has been observed, when consumers in Tsuruga avoid purchasing fish from Kanazawa, which is distant from Tsuruga and where radioactive contamination is completely unthinkable, and prefer not to eat produce from regions even farther away, such a state of mind is not commonly acknowledgeable, but is the result of consumers’ judgment based on emotions aroused by the accident which cannot be found to be a direct consequence of the accident. If compensation

orders were to be given on the grounds of emotional concerns regarding the safety of fisheries products from Kanazawa, then the decline in consumption in Kanazawa would also have to be acknowledged which would unnecessarily expand the scope of damages.” “Therefore, even if the plaintiffs’ sales dropped after the accident in question, the result has been derived by consumers’ individual states of mind, which are extremely subjective states of mind that drive consumers not to eat something that is safe; and therefore, it is unlikely that the same circumstances will constantly lead to the same state, which was not in general terms foreseeable. Hence, it is appropriate to say that there is no link of adequate causation between the marginal radioactive leakage in Urasoko Bay which has no effect upon the human body and customers in Tsuruga refraining from purchasing fisheries products from Kanazawa.

Chapter 3 The Compensation Regime of the Nuclear Compensation Law Based on Strict Liability and the Ideal Remedy for Victims of a Nuclear Accident

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1. Significance of the Nuclear Compensation Act in terms of strict and unlimited liability

The nuclear damage which arose at Tokyo Electric Power Company (TEPCO)'s Fukushima Daiichi Nuclear Power Plant ("nuclear damage from the TEPCO Fukushima accident") as a result of the Great East Japan Earthquake of March 11, 2011 has been addressed using the Act on Compensation for Nuclear Damages (Nuclear Compensation Act), which stipulates strict and unlimited liability for nuclear damage in Section 3 paragraph 1.

Strict liability in tort law coexists in conflict with negligence liability. It is rooted in German law which incorporated strict (risk-based) liability in its modern context³²¹. The German Act on the

³²¹ In the discussions held at the Code Investigation Committee which was established during the formulation of Japan's Civil Code, committee member Yatsuka Hozumi questioned the proposal of stipulating tort liability to be based on negligence, stating that it might be problematic to apply the fault liability principle to dangerous businesses such as railroad companies. In response, committee member Nobushige Hozumi (who had drafted the tort law provisions) said, "there are many occasions when a certain business or certain lifestyle may impose particular danger upon a third party [...] considering the fact that this person is in a special situation compared to those who are living an ordinary life, there may be instances when a business causes damages it must compensate for regardless of the presence of intention or negligence, and we are not in the least opposed to formulating a special law to impose such obligations and we expect such needs to occur." (*Shorthand records from Code Investigation Committee meeting no.5* (Shouhou houmu kenkyuukai, 1984) p301). It would seem that the contention that the principle of fault liability was essential in order to secure the free activity of the individual and the concept that special laws governed by strict liability could be enacted outside of the Civil Code as needed was derived from discussions in Germany when the German Civil Code (BGB) was formulated. (Refer to Urakawa, Michitaro, *Mukashitsu songai baisho sekinin (Liability for damages base on strict liability)*, Hoshino, Eiichi, *Mimpo Kouza (Civil Code Lecture 6)* (Yuhikaku, 1985) p201 (footnote22). Japan has actually followed Germany's footsteps in legislating special laws based on strict liability in accordance with the development of dangerous technologies. Section 3 of the Automobile Liability Security Act, which is based on strict liability has also drawn on Germany's strict liability regime for automobiles (Yoshino, Mamoru, *Jibaihou no rippou katei (Legislation process of the Automobile Liability Security Act)* and Susumu, Yoshioka, *Gendai songai baishouhou kouza 3 (Modern liability law lecture 3)* (Nihonhyouronsha, 1972) p3-).

Peaceful Utilization of Atomic Energy and the Protection against its Hazards (“Atomic Energy Act”) has switched from limited liability to unlimited liability, and therefore, it is useful to study the emergence and evolution of strict liability in German law and to observe the implications of the transition of the German Atomic Energy Act from a limited liability regime to an unlimited liability regime, in order to explore the concept of strict and unlimited liability adopted in Japan’s Nuclear Compensation Act³²². Hence, the author would like to briefly examine the emergence and development of strict (risk-based) liability³²³ in Germany and its alteration of the liability principle underlying the German Atomic Energy Act.

(1) Introduction of strict liability in German law

The origin of Germany’s strict liability regime dates back to 1838, when it was still a federation of territories (Staatenbund) yet to be unified. Having welcomed an era of industrial revolution that was developing under a customs union, Prussia was facing political challenges regarding the construction of a railway system. The leaders of Prussia wanted to introduce a railway system as a new means of transport to support economic development. However they were met by powerful parties reluctant about proactive government engagement in unproved fields and by strong public resistance based on concerns over the uncertain risks involved with new technology. Hence, in order to protect victims, then Minister of Justice, Heinrich Gottlob von Mühler proposed, in deviation from the conventional fault principle under tort to hold the railway company which caused the damage fully liable the accident-induced damage for which there was no negligence. With the support of Privy Council member and prominent jurist Friedrich Carl

³²² The Nuclear Compensation Act was enacted in 1961, drawing upon the U.S.’s Price Anderson Nuclear Industries Indemnity Act (“Price Anderson Act”) as was the case with the German Atomic Energy Act which was legislated in the same period. Although its framework may have been derived from the Price Anderson Act, the Nuclear Compensation Act’s limited liability scheme is considered to be more in line with Japan’s existing legislations taking a limited liability approach.

³²³ As there are many schemes in which negligence is not a prerequisite for liability, unlimited liability in tort law is called risk-based liability (Gefährdungshaftung), which shall be referred to hereinunder as “unlimited liability” in accordance with common Japanese use.

von Savigny, who sought to derive strict liability from *receptum*³²⁴ of Roman law, this concept was embedded into Article 25 of the Prussian Railroad Law, which became the world's first legislation of strict liability.

It can be understood from this historical background that the concept of strict liability under tort law was aimed at allowing the introduction and use of new technology. By freeing victims of the requirement to prove negligence and providing generous indemnification in the event of an accident, the general public was encouraged to accept new technologies with risks. Article 25 of the Prussian Railroad Law led to developments in Germany's strict liability regime which would provide a legal basis for emerging technologies and industries which entailed risks.

The German approach to strict liability is an established concept. Strict liability is liability for damage arising from "approved risk" and is understood not to require illegality. Hence, it is interpreted to be a liability regime that attributes the damages that occur, when risk becomes reality, to parties which gain benefits from the technology and to facilities involved in the risk, as the use of technologies involving risk and the operation of dangerous facilities cannot be abolished due to their social benefits. It is a liability regime that possesses the two indivisible factors of social acknowledgment of risk and the fair burdening of damages accompanying the materialization of risk.

(2) Development of special statutes on strict liability in Germany

Although strict liability was adopted in Article 25 of the Prussian Railroad Law, German Civil Code (BGB) provisions on torts were integrally compiled in accordance with the fault principle, due to the influence of the Pandekten system which was then dominant, and strict liability was adopted only in extremely exclusive provisions: for the liability for ownership or possession of animals and for the liability for

³²⁴ Receptum is a form of strict liability derived from Roman law where shipowners, innkeepers and stablekeepers are liable for any damage to goods consigned or deposited by their customers,

wild animals. However, even the theory-oriented compilation of the Civil Code failed to exclude principles other than the fault principle and had to retain the above-mentioned exception as well as the Reich Liability Law, an additional special law succeeding Article 25 of the Prussian Railroad Law. Therefore, a two-dimensional tort law regime was established encompassing the fault principle governed by the Civil Code and a new special law regime based on strict liability for the protection of victims in order to promote public acceptance of dangerous facilities and technologies.

Developed as an exception to the Civil Code, the strict liability law regime necessitated the enactment of a number of new laws as new technologies were developed and introduced. Today, it comprises liability for water contamination, mine pollution, environmental pollution, defective medical products and manufacturing defects, and for damages occurring from the use of animals, railways, automobiles, aircraft, electricity, gas, steam, nuclear power, and genetic engineering³²⁵.

(3) Limits of liability under strict liability

Having been adopted in parallel with the development and introduction of new technologies, (and though they commonly do not require proof of negligence), German special laws based on strict liability are varied in terms of their requirements for exemption from liability and for their effects, which depended on the political and social context in which they were legislated. One of the diverse effects is limits to the scope of liability (limitation of liability) on the part of the party who caused the damage.

The German Atomic Energy Act had initially been based on limited liability but was later transformed to an unlimited liability regime. The following paragraphs are an overview of the background of the introduction to German tort law of a limitation of liability scheme in a strict liability context.

Neither the strict liability clause on animals in the BGB nor the

³²⁵ E. Deutsche et al, *Doitsu huhokouihou (German tort law)* (translated by Michitaro Urakawa). Nihonhyoronsha, 2008, P212-

Prussian Railroad Law, Article 25, nor the origin of strict liability legislation nor the succeeding Reich Liability Law ³²⁶ contained provisions on limitation of liability.

The German Road Traffic Act (Straßenverkehrsgesetz), enacted in 1909, which stipulates strict liability for road traffic accidents was the first legislation of limitation of liability in the strict liability regime of German tort law.

The growing automobile industry, which was manufacturing an emerging means of transport for the masses, and automobile societies, comprising individuals who enjoyed driving and were strongly opposed to having to bear strict liability, had much influence upon the formulation of the Road Traffic Act. Under such pressures, the strict liability-oriented law was adopted only after much tortuous dialog. In order to foster the growing automobile industry and make affordable liability insurance available for automobile owners, a regime that incorporated limitation of liability was required³²⁷. Consideration for industrial development and opportunities to hedge liability risks borne by potential victimizers by means of insurance provided the grounds for establishing limitation of liability. This limitation of liability was later included in the existing Reich Liability Law on liability related to railroads and became a principle common among all special laws stipulating strict liability. In a study of the strict (risk-based) liability regime, Esser stated that “maximum liability amounts are very rigidly set, but in this way are an expedient distribution factor in consideration of risk calculation for insurance and prevention of [the liable party’s] economic collapse³²⁸.

(4) Liability for nuclear damages as unlimited liability

The German Atomic Energy Act (Atomgesetz) of 1959 was also a strict liability oriented legislation which had stipulated in Article 25

³²⁶ The Reich Liability Law initially did not contain a limitation of liability clause but introduced one in 1923.

³²⁷ V. Gadow, O., Die Zählung des Automobils durch die Gefährdungshaftung, 2002, S.122

³²⁸ Esser, J., Grundlagen und Entwicklung der Gefährdungshaftung, 2.unveränd.Aufl., 1969, S.107

and beyond limitation of liability, or a cap on liability amounts, without acknowledgment of appeals of force majeure³²⁹. Drawing on the U.S. Price Anderson Act, the law was amended to provide that nuclear damages would be compensated by means of insurance burdened by owners of nuclear facilities and by government compensation. Combined with the conventional approach of incorporating limitation of liability in strict liability, the scope of liability on the part of facility operators and the pooled compensation amounts became indivisible under the German nuclear liability regime.

The German Atomic Energy Act was switched from a limited liability approach to an unlimited liability approach upon the amendment of its liability provisions in 1985³³⁰. This amendment was executed in line with the amendments made to the Paris Convention on Third Party Liability in the Field of Nuclear Energy ("Paris Convention") and the Convention Supplementary to the Paris Convention of July 29, 1960 ("Brussels Supplementary Convention").

The transition to unlimited liability is detailed in the explanatory statement³³¹ that the safe use of nuclear power had been secured as a result of technological developments³³², it is no longer appropriate to grant owners of nuclear facilities limitation of liability, or treatment preferential to that of the owners of other large high-technology facilities, and that some public interests will benefit from enhanced protection under an unlimited liability regime. Hence, the change was based mainly on the idea that it was no longer necessary to grant nuclear power producers the privilege of limited liability as it had become a mature technology.

As a result of this amendment to the German Atomic Energy Act, nuclear facility operators would have to sacrifice their own assets to

³²⁹ BGBl. 1985 I S. 814

³³⁰ BGBl. 1985) I S. 1565

³³¹ BT-Drucks. 10/2200,S5f

³³² BT-Drucks. 10/2200,S.5.states that today, nuclear facilities can be referred to as common equipment using major technologies." An advantage of an unlimited liability regime is that whereas in a limited liability regime, maximum liability amounts must be reviewed according to changes in the money value and economic environment, such adjustments are not necessary.

compensate for damages exceeding the initial maximum amount, which was the sum of the financial security of 500 million marks procured through insurance and government compensation of up to double the amount pooled by facility operators, or 1 billion marks (equaling a maximum of 1 billion marks available to compensate for damages occurring from nuclear accidents). It would be quite interesting to learn what those involved in the amendment had thought about its consequences, but no explanation has been provided in the explanatory statement of the law. However, an examination of the clauses altered and inserted as well as comments by those who exercised their influence in the amendment brings us to imagine that considerations were made towards nuclear facility operators and that alternative approaches were prepared.

Firstly, the amendment involved the inclusion of a new provision to acknowledge, when appropriate, the appeal of force majeure for exemption from unlimited liability, regarding the domestic implementation of the Paris Convention about which the German government had reservations³³³. This allowed for the conventional limitation of liability to the 1 billion marks (as of 1985) pooled, as German nuclear facility operators would not bear unlimited liability in the event that a grave natural disaster of an exceptional character, an insurrection or hostilities occur.

Secondly, the amended Section 35 of the German Atomic Energy Act stipulated as follows: “(1) Where legal liabilities to pay compensation for damage resulting from an incident are expected to exceed the amount available to satisfy such liabilities, their apportionment and the procedure to be observed in this context shall be governed by an act or, pending such act, by statutory ordinance.(2) The statutory ordinance referred to in paragraph (1) above may only make such provision for the apportionment of the sums available to cover the legal liability to pay compensation for damage as is necessary to avert hardships. Such statutory ordinance shall ensure that satisfaction of the claims of the injured persons as a whole shall not be

³³³ German Atomic Energy Act, Section 31, paragraph 1

unduly prejudiced by the satisfaction of individual claims.”³³⁴ Therefore, in the event of a major occurrence requiring more than available compensation amounts, comprised of the a sum of the financial security maintained by the nuclear facility operator, including contribution of its assets, and government compensation, the national government is obligated to make an intervention, therefore ensuring Government involvement in apportionment and procedures³³⁵.

³³⁴ The 1985 German Atomic Energy Act, Section 35, entitled “Apportionment,” had been included in the original 1959 German Atomic Energy Act as Section 37. It had been required in the 1959 Atomic Energy Act, as well, to include a similar provision in order to address damages exceeding the set amount (then 500 million marks) pooled for compensation of damages. The explanatory statement of the law (BT-Drucks.3/759, S.40) explains that “500 marks have been pooled per accident for the implementation of legal liability for damages occurring from nuclear accidents. This amount has been set large enough, that from all past experiences it would not be insufficient to cover damages. However, it is necessary to include a provision for extremely unlikely cases in which this amount would not be able to satisfy all victims. However, events inducing such major occurrences would be national catastrophes of a magnitude that we cannot be prepared for as of now. [Therefore,] Enacting such provisions [when such events occur,] in adaptation to special needs arousing from accidents would be more in line with the purpose of the law. Furthermore, a commentary on the 1985 Atomic Energy Act (Haedrich, H., Atomgesetz mit Pariser Atomhaftungs -Uberekommen, 1986, S.546) notes on Section 35 that “if in an individual case, the legally obligated compensation amount exceeds the monies pooled for nuclear compensation, [...] a supplementary provision that stipulates a right of claim that shall not be compensated from a social state perspective should be sought. This provision will not be bound by the requirements set in the liability provisions.” Regardless of limited or unlimited liability, a situation in which monies pooled for the fulfillment of legal obligations to compensate for damages are exhausted, was understood to be a national catastrophe (nationale Katastrophe), for which a special legal response not limited to resolution within the framework of conventional civil liability had been assumed.

³³⁵ When Germany switched from limited liability regime to a unlimited liability regime, Switzerland had already adopted an unlimited nuclear liability regime. The Swiss Act on Nuclear Third Party Liability (Kernenergiehaftpflichtgesetz) includes one chapter on “major occurrences” and stipulates the following (the law was amended from its original version after Switzerland’s accession to the Paris Convention, but the quotation will be from the 2008 law as no major changes have been made.):

Section 29 (Principles)

- (1) In the case of a major occurrence, the Federal Assembly may establish an indemnity scheme by means of a Federal Order (Verordnung).
- (2) A major occurrence has occurred if in the event of an accident there are grounds for anticipating that the financial resources available for covering the damage will not be sufficient to satisfy all claims, or that the injured parties are so great in number that normal procedures cannot be implemented.
- (3) The Order shall determine the general principles for compensation of the injured parties in order to ensure the equitable distribution of all available funds.
- (4) The Order may include the following:
 - a. Deviate from provision of this Law or other indemnity laws; consider the principles included in the Paris Convention and Brussels Supplementary Convention provisions for the distribution of the compensation referred to in Section 8 and Section 15.
 - b. Predetermine that the Confederation shall pay additional contributions in respect of damage not otherwise covered

Thirdly, Norbert Pelzer³³⁶, a prominent researcher in the nuclear energy field who greatly influenced the amendment of the law proposed an unlimited liability regime based on a compensation pool of 3 billion marks³³⁷ (which failed to include monies for compensation exceeding that amount) in 1982. He explained that “a major occurrence which exceeds 3 billion marks actually constitutes a national catastrophe that cannot be resolved by civil liability means. In such cases, the social state principle holds the government responsible for giving consideration to appropriate indemnification. This is interpreted to be apparent and does not require any explicit legal provision.”³³⁸ Roman Herzog³³⁹, President of the Federal Constitutional Court and later the seventh President of Germany, advocated the introduction of unlimited liability in Germany’s nuclear liability scheme and stated at a nuclear energy forum held in Munich in September 1984, “Let us just imagine

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- c. Determine procedures for the implementation of the indemnity scheme and entrust an independent body (Instanz) with the determined procedures. Appeals to the Federal Court against decision of this body shall be permissible.

(5) The Federal Council shall take any provisional measures that may be necessary.

Section 30 (Modification of insurance premiums; retrospective premiums)

(1) Where a state of emergency is created by major occurrence, the Federal Council is empowered to issue regulations relating to private insurance on:

- a. the modification of the insurer’s liability;
- b. the levying of retrospective premiums on policy-holders
- c. the deduction of such retrospective premiums from insurance payments

(2) This power shall not extend to the indemnification agreement to be concluded under this Act.

Both German and Swiss law, both adopting an unlimited liability regime, have stipulated the Government’s obligation to intervene when the compensation monies are expected to be insufficient, and therefore imply proactive Government involvement not restricted to ordinary liability rules. (Swiss law is particularly elaborate on this point.)

³³⁶ Norbert Pelzer was Professor at Göttingen University in 1985, when the Nuclear Liability Act was amended. In 1982, before the amendment of the German Atomic Energy Act, he wrote *Bergrenze und unbegrenze Haftung im deutschen Atomrecht (Limited and unlimited liability in the German Atomic Energy Act)* (Nomos, 1982), which discussed the key issues of the amended law. He participated in the First Japan-Germany Symposium on Nuclear Law to deliver a presentation on the German Nuclear Liability Act. Refer to Kanazawa, Yoshio. *Nichi doku hikaku gensiryoku hou (Comparison of Nuclear Laws in Germany and Japan)* (Yuhikaku, 1980) p99-

³³⁷ 1 German mark was the equivalent of approximately 100 Japanese yen under the foreign exchange rate of 1982.

³³⁸ Pelzer, aa0.,S.66f

³³⁹ A Professor of Constitutional Law at the Free University of Berlin, Roman Herzog became a member of the Parliament representing the Christian Democrats. He had been appointed judge at the Federal Constitutional Court in 1985, the year that amendments were made to the German Atomic Energy Act. He was inaugurated the seventh President of the German Federation in 1994.

for a moment that something which we will deem impossible, and which each of us in his own way does his utmost to prevent, actually happens – a disaster [a catastrophic nuclear accident] which causes damages exceeding the upper limit of 1 billion marks by ten or even twenty fold. Can anyone really believe that in such a contingency somebody would invoke Section 31 of the Atomic Law or even read it? The Federal Parliament [Bundestag] would be convened, calling for the largest possible 'unconventional and unbureaucratic' [not narrow-mindedly sticking to rules] indemnification for all the damage suffered. Similar action would be taken in the government, and not even the Minister of Finance would protest; he would simply nod his head in sympathy.”³⁴⁰ These statements imply that major occurrences which exceed the capacity of private nuclear facility operators and cannot be recovered by insurance and other financial security or mandatory government compensation had been considered to lie beyond the scope of civil liability, and that proactive government involvement unrestricted by the provisions of the Atomic Energy Act had been assumed for such occurrences.

(5) Differences between unlimited liability regimes in the German Atomic Energy Act and the Japanese Nuclear Compensation Act

As mentioned, under the unlimited liability regime that was introduced to the German Atomic Energy Law, when damages are expected to exceed amounts available for compensation per the sum of measures assumed by the nuclear facility operator, including contribution of its assets, and government compensation, the national government is to intervene pursuant to Section 35 paragraph 1 to promptly determine their apportionment and the procedure to be observed in this context shall be governed by an act (or by statutory ordinance in case of emergency). Hence, proactive government involvement has been made explicit in written law³⁴¹. Furthermore, in

³⁴⁰ Herzog, R., Keynote Address to the Symposium on Third Party Liability and Insurance – Status and Prospects, Held in Munich from September 10 -14, 1984, P60

³⁴¹ German Atomic Energy Act, Section 35, paragraph 2 provides that “ The statutory ordinance referred to in para. (1) above may only make such provision for the

the event of a major occurrence, such as the TEPCO Fukushima accident which caused damages that exceeded the assets and capacity of a private nuclear facility operator, the statements made by Pelzer and Herzog and explanatory notes for German and Swiss legislation all point out that even in countries with an unlimited liability regime, such an occurrence would be considered a national catastrophe exceeding the scope of civil liability and that proactive government involvement not restricted to conventional liability provisions in the Atomic Energy Act would be expected, from the perspective of recovering from such a disaster³⁴².

In contrast, Japan's Nuclear Compensation Act, in Section 16, provides that "Where nuclear damages occur, the government shall give a nuclear operator (except the operator of a foreign nuclear ship) such aid as is required for it to compensate the damages, when the actual amount which it should pay for the nuclear damage pursuant to Section 3 exceeds the financial security amount, and when the government deems it necessary in order to attain the objectives of this act." The provision fails to make clear the timing and contents of government compensation³⁴³. Furthermore, faced with a real accident, in which

apportionment of the sums available to cover the legal liability to pay compensation for damage as is necessary to avert hardships. Such statutory ordinance shall ensure that satisfaction of the claims of the injured persons as a whole shall not be unduly prejudiced by the satisfaction of individual claims." The provision provides for prompt response to an emergency situation and its explanatory notes emphasize the importance of removing social fear by prompt response in the event of a major occurrence. Relating to the concepts presented in this provision arouses large misgivings about the Japanese government's response to the TEPCO Fukushima accident for which compensation for damages to property have not yet progressed, because the Dispute Reconciliation Committee for Nuclear Damage Compensation ("Reconciliation Committee") discussed and formulated general instructions based on adequate causation regarding compensation for harmful rumor-induced damages, indirect damages, before gaining a complete view of the damages, and failed to provide compensation for the self-dependent livelihood of evacuees who lost their land and homes due to radioactive contamination.

³⁴² The Swiss Act on Nuclear Third Party Liability, Section 29, paragraph 4 stipulates that in the event of a major occurrence, an independent body (Instanz) may be established. An administrative body, instead of a special court, may entrusted with the determination of compensation payments.

³⁴³ Pelzer, an advocate of unlimited liability in German law opinioned regarding Japan's unlimited liability regime that "the provision stipulating Government intervention is extremely ambiguous and one cannot foresee with certainty whether the Government will make payments and if so, how much it will provide. Additional Government payments are dependent on what political implications a nuclear reactor accident will have." Pelzer,aaO.,S.62.

total damages are of a magnitude yet indeterminable and many victimized parties are exposed to fears about their present and future livelihoods, the government has not come forward to take the initiative in compensation for damages and has relegated administrative tasks related to compensation to TEPCO, a private company. This diverges from Germany's approach to government involvement, derived from constitutional principles, in the event of a catastrophic nuclear accident³⁴⁴.

2. The Nuclear Compensation Act and its approach to compensation for nuclear damages in the TEPCO Fukushima accident

The Nuclear Compensation Act, which stipulates Japan's approach to liability for damages occurring from a nuclear accident, establishes a strict liability regime which does not limit the scope of liability (unlimited liability) and provides, as a scheme to secure compensation, measures to be assumed by nuclear operators³⁴⁵. The framework of the Nuclear Compensation Act is comparable to corresponding schemes in Germany and Switzerland which have also adopted strict and unlimited liability.

However, as mentioned, Japan's Nuclear Compensation Act is extremely ambiguous about if or how government intervention will be made in the event of a nuclear accident, compared to corresponding laws of Germany and Switzerland which have included explicit provisions. More than three years have passed since the occurrence of

³⁴⁴ Following the Chernobyl accident, Germany implemented compensation measures for German citizens pursuant to the German Atomic Energy Act, Section 38 (Government compensation for damages occurring from nuclear accidents in countries which are not parties to the Paris Convention). Although Government compensation was a controversial issue in this case, it can be acknowledged that the Government addressed compensation for damages proactively, non-bureaucratically, promptly, and smoothly. Eich, W., The Compensation of Damage in Germany Following the Chernobyl Accident, Workshop Proceedings (OECD) Paris, France 26-28 November 2001, p89. National governments bear the responsibility of resolving social fear in a major nuclear accident.

³⁴⁵ The following paragraphs have been written on the premise that the exemption clause of Section 3 is not applicable to the TEPCO Fukushima accident.

the TEPCO Fukushima accident, but the ambiguity has not been resolved. We have yet to see the end of compensation for damages which arose from the TEPCO Fukushima accident, and many evacuees continue to have little choice but to live in provisional housing and are unable to return to a stable life.

(1) Status quo of compensation for damages

Compensation for damages arising from the TEPCO Fukushima accident has been executed pursuant to Section 3 of the Nuclear Compensation Act, which stipulates civil liability for nuclear accidents. Hence, TEPCO, solely bearing strict and unlimited liability, in accordance with the principle of concentrating liability upon the nuclear operator, has addressed individual claims for damages in line with conventional compensation methods for tortious actions. The criteria used in determining the scope of nuclear damages and estimating compensation payments are based on the “instructions establishing the scale of the nuclear damage and other general instructions to help operators reach voluntary settlements of [...] disputes” (“General Instructions”) arising from compensation of nuclear damage formulated by the Reconciliation Committee pursuant to Section 18 of the Nuclear Compensation Act.

However, under the current nuclear compensation scheme, although the General Instructions determined by the Reconciliation Committee would serve to enable the estimation of compensation payments, negotiations on compensation cannot be taken forward without the formulation of the General Instructions. Therefore, when the number of victimized parties and categories of damages are massive, estimating compensation payment with individual consideration for circumstances unique to the victim would be too time consuming and delays in finalization of individual payments would impede the estimation of total nuclear damages due to the TEPCO Fukushima accident. Hence, even with means to procure funds for compensation now available with the formulation of the Nuclear Damage Compensation Facilitation Corporation Act (Facilitation Corporation Act), we cannot be sure about the viable end to the support for TEPCO

under the current scheme governed by unlimited liability and whether or not there are limits to government support³⁴⁶.

In addition, it was only in March 2013, two years after the accident, that individual and corporate claims for residential land, building and leasehold began to be accepted. However, compensation for property damage such as that sustained by land and houses has not seen much progress. Despite reports that 49,000 households are entitled to compensation for property damage ³⁴⁷, only 8,200 cases of compensation for residential land and houses have been announced by TEPCO as of October this year (2013)³⁴⁸. In comparison with damage for mental anguish and incapacity to work which could be estimated using a simple formula based on criteria set in the General Instructions, compensation payments for property damage regarding residential land and buildings are complicated even when using the method provided in the General Instructions. Furthermore, given that calculations must be done separately for each piece of property and that rights issues must be resolved, one cannot be certain as to when all procedures will be concluded.

(2) Compensation for major nuclear damage

If the bounds of a nuclear operator's liability were limited, then

³⁴⁶ The "Report on the Results of the Audit on the Status of Implementation of Government Support Related to Compensation for Nuclear Damages Caused by Tokyo Electric Power Co., Ltd." published by the Board of Audit in October 2013 stated that "Despite payment of a total of over 2 trillion 910 billion Yen as of September 27, 2013, in relation to nuclear damages related to the nuclear accident of 2011, there are no clear forecasts of total compensation payments due to the character of the process of determining individual payments through negotiation with victimized parties according to individual circumstances. Furthermore, in the event contamination removal costs are determined to be fully added to compensation payments, the scale of liabilities will be further expanded. On the other hand, Government support for nuclear damage compensation is expected to continue, and hence, funds provided via the Facilitation Fund is also expected to increase. Therefore, an estimation of high certainty regarding the total and timing of compensation payments should be made as promptly as possible in order to provide precise prospects of the scale and timing of fiscal burden. This is an essential requirement for gaining public understanding towards the support extended by the Government to TEPCO." (p202)

³⁴⁷ Report by Fukushima Minpo, October 22, 2013

³⁴⁸ According to material distributed by TEPCO at the 35th Reconciliation Committee meeting (Shin-35 Material 1-2), as of September 20, 2013, compensation payments totalling 143.8 billion yen for damages to residential land and housing have been completed for 8,200 households.

compensation would be implemented based on civil liability within the limits of the financial security to be made available by nuclear facility operators. In the event that major damage exceeding limits were to occur, the government would provide adequate compensation to victimized parties from the perspective of the party responsible for making policy decisions to promote the peaceful use of nuclear power and for ensuring human security³⁴⁹. On the other hand, if nuclear operators were to bear unlimited liability, instead of limited liability, the scope of funds to be used for compensation would be expanded to include not only the financial security maintained by nuclear operators but also their general assets. However, this would mean that when these funds were exhausted there would be no additional funds available for further compensation. Also, reasonable thinking brings us to realize that unlimited compensation in correlation with unlimited liability is in reality impossible, given the limited character of resources³⁵⁰. However, when limited liability is chosen, the intention to provide extensive relief is apparent. Hence, when the funds available for the compensation of damages have been exhausted, government compensation must be implemented under the same principle as that of limited liability.

Along these lines, in the event of major damage, such as the nuclear damage from the TEPCO Fukushima accident, government involvement is inevitable even in an unlimited liability scheme. Given the unlimited liability borne by the nuclear operator, the burden assumed by the government in order to cover the amounts that the nuclear operator is unlikely to be able to compensate due to a shortage of funds will increase. However, in this case the government's liability to compensate (support) is not the equivalent of civil liability (similar to liabilities in a joint guarantee) but more of a character that supplements the liabilities of the nuclear operator. Hence, when the

³⁴⁹ Government compensation in such situations are the equivalent of a country's functions in disaster relief and should not require explanation of the reasoning on which it is founded.

³⁵⁰ Pelzer, an advocator of unlimited liability in the damage compensation scheme under the German Atomic Energy Law, also referred to the impossibility of making available unlimited compensation amounts in accordance with the liability in an unlimited liability regime.

government intervenes in providing compensation (support) for nuclear damages, it must take into consideration not only the financial security amount made available by the nuclear operator and its total assets but also the appropriate amounts that it can contribute in terms of fiscal burden. It must make an effort to realize prompt relief, in the context of its responsibilities to indemnify the victimized parties and resolve public fears, and to determine the scope and amount of compensation payments from the perspective of distributive justice (*justitia distributiva* = to allocate to each victim that which is in accordance with his needs), unbound to the civil liability principle of adequate causation regarding the scope of damages³⁵¹.

(3) A new compensation scheme for nuclear damages from the TEPCO Fukushima accident: Act for the Indemnification of Damages from Nuclear Accidents (tentative title)

In terms of the nuclear damages from the TEPCO Fukushima accident, it was apparent from the outset that the scale of the damages was not of a magnitude recoverable using the financial security amount provided for in the Nuclear Compensation Act and TEPCO's assets. Therefore, the Facilitation Corporation Act was enacted as "aid is required for the nuclear operator to compensate the damage, and 'support' has been provided to TEPCO in the form of loans". However, the conventional civil law-oriented method of negotiating resolutions between victimized parties and TEPCO under the Nuclear Compensation Act and the Facilitation Corporation Act has, as mentioned, only stalled the progress of compensation procedures, therefore impeding the protection of the victimized. Also, as the government is only involved in indirectly providing compensation payments and does not proactively and directly stand in the forefront of compensation of victims, the nuclear operator has been solely assuming the burden. Neither of the two purposes of the Nuclear Compensation Act stipulated in Section 1, "to protect persons suffering from nuclear damage and to contribute to the sound development of

³⁵¹ German and Swiss response to depletion of compensation funds discussed in footnotes 334 and 335 should be referred to.

nuclear business” , can be achieved under such circumstances.

Hence, there is a need to fundamentally improve the current status.

A new compensation scheme could be contrived based on the Pollution-Related Health Damage Indemnification scheme:

- i) Establish a Damage Indemnification Organization, as an independent administrative corporation in order to implement an indemnification scheme independent of (but concurrent with) the current compensation scheme based on civil liability under government responsibility.
- ii) Payments under the indemnification scheme shall be made pursuant to criteria for indemnification (criteria based on civil liability). Investigation of damage, determination of indemnification amounts and payments shall be implemented by the Damage Indemnification Organization. Appeals may be made against contentious decisions, and administrative court procedures may be taken.
- iii) The government shall make all funds for indemnification payments available. After all payments have been made, the Damage Indemnification Organization shall claim compensation payments which should have been assumed by the nuclear operator pursuant to Section 3 of the Nuclear Compensation Act.
- iv) Victimized parties may file claims for damages with the nuclear operator based on civil liability (Nuclear Compensation Act) and / or with the Damage Indemnification Organization. A victimized party who has chosen to seek indemnification of damages cannot execute the right of claim for compensation while indemnification procedures are underway. A victimized party who has already claimed compensation and received payment from the nuclear operator cannot claim indemnification for an overlapping scope of damages. If a victimized party who has received indemnification payment should claim that the damages suffered were larger than the amount received, then the party may claim damage under the conventional damage compensation scheme based on civil liability. When a victimized party receives damages compensation payment based on civil liability after receipt of indemnification payment, the overlapping categories of damages shall be offset as profits would be against losses.

Chapter 4 Proposal of a Law for the Indemnification of Nuclear Damages

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1. Issues regarding the current Nuclear Compensation Law

The damages resulting from the TEPCO Fukushima Daiichi Nuclear Power Plant accident (“Fukushima accident”) have been compensated through the following procedures to present (c.f. Part II Chapter 1) . On the premises that the Great East Japan Earthquake is cannot be identified as an “exceptionally grave natural disaster” as stipulated in the exceptional clause in Section 3 paragraph 1 of the Act on Compensation for Nuclear Damage (“Nuclear Compensation Act”), the Government established a Dispute Reconciliation Committee for Nuclear Damage Compensation (“Reconciliation Committee”), which has published guidelines on the categories and scope of damages to be compensated by TEPCO. TEPCO established the Fukushima Nuclear Compensation Office in Fukushima under the Fukushima Revitalization Headquarters and deployed more than 10,000 employees to take reconciliation procedures forward according to the guidelines compiled by the Reconciliation Committee. Although compensation payments have been made for approximately 1.9 million cases amounting to about 3 trillion Japanese yen (page 4 should be referred to for entire costs incurred in addressing the aftermath of the TEPCO Fukushima accident), a host of unresolved cases have accumulated and an increasing number of actions have been brought to court. There are also many people who have not claimed compensation for damages. Hence, according to estimates (presented at the 77th Civil Law Society Symposium “Earthquakes and Civil Law”) by Mr. Yoshihisa Nomi, chairman of the Reconciliation Committee, compensation payments will amount to a minimum of 5 trillion Japanese yen and can reach up to as high as 10 trillion Japanese yen (c.f. page 4 footnote 29). With no prospects of methods and effects of decontamination measures to be implemented in radiation-contaminated areas including evacuation

zones, it remains unclear how long residents will have to continue evacuating. At present, future radioactive impacts on agriculture and fisheries, as well as health hazards, are yet to be known. On the other hand, despite the adoption of a special legislation to be applied to the TEPCO Fukushima accident regarding the three-year extinctive prescription for damage compensation stipulated in Article 724 of the Civil Code, the period of prescription is nearing termination. Hence this issue requires immediate attention (c.f. page 110 and succeeding pages).

Under the current Nuclear Compensation Act, in the event of a nuclear accident caused by a tremendous earthquake and tsunami, the first question is whether the exceptional clause of Section 3 is applicable. Even if the issue were to be dismissed (if the exceptional clause was irrelevant), once radioactive substances are released as a result of the accident, the contamination could become widespread and various types and forms of damages ranging from personal health hazards to natural environment destruction could occur over a long period of time, depending on the amount of radioactive substances released and on radiation dosage. As revealed in the recent accident, the damages and amount of loss caused by a nuclear accident are unpredictable. In terms of addressing claims for damage compensation, individual assessment of compensation payments for the various damages suffered by tens of thousands of victims according to damage compensation rules under the Civil Code would entail massive procedural costs (management costs, administrative costs). Not only the enormous amount of human resources, costs and time devoted by TEPCO to reconciliation, but also the anxiety and dissatisfactions of the victims towards the time and effort required for reconciliation as well as the uncertainty of the compensation process have grown too large to be left in the current state. .

The damages imposed by the recent TEPCO Fukushima accident was not limited to infringements on individual property rights or bodies but also included damages and losses due to the deprivation of home communities from families who have no choice to leave their places of work and living. Such circumstances, as mentioned in Chapter 1, are not assumed in tort compensation law, which stipulates the scope of

damages to be compensated by the persecutor to the victim in terms of infringements of a person's individual rights or interests. While it is unknown whether such consequences had been foreseen at the time of legislating the Nuclear Compensation Act, it had been debated that the damages which would be incurred by a nuclear accident were unpredictable. Hence, the government's Special Subcommittee on Nuclear Damage Compensation chaired by Sakae Wagatsuma, then professor emeritus at the University of Tokyo, advocated the adoption of strict liability on the part of operators and that government compensation should be made in the event that the compensation amounts exceed the amounts pooled by operators through private insurances. The committee also proposed a fair and prompt compensation process (instead of a reconciliation process) assumed by an administrative committee (Nuclear Damage Indemnification Adjustment Committee). However, both ideas of government compensation and an administrative committee were denied in the legislation process. Details are provided on this background in Part I, Chapter 4.

The Nuclear Compensation Act has not altered the rules of damage compensation except in Section 3 which stipulates a modification of Article 709 of the Civil Code and imposes strict liability upon the nuclear operator, and in Section 4 which channels all liability to the nuclear operator. The guidelines formulated by the Reconciliation Committee established pursuant to Section 18 correspond to the "draft instructions establishing the scale of the nuclear damage and other general instructions to help operators reach a voluntary settlement of the said dispute (a dispute arising from compensation of nuclear damage)." Hence, the Reconciliation Committee is not given the authority to establish new rules which ignore the compensation-related rules acknowledged in judicial precedents and theories. Although the Reconciliation Committee would seem to be making its best efforts to relieve victims of the damages imposed in the Fukushima accident, padded compensation payments (for example, payments for pain and suffering to voluntary evacuees from outside evacuation zones) have been made without firm grounds. These have been made in response to

ad hoc claims made within the framework of the current Nuclear Compensation Act, which is based on tort compensation law under which individuals sue individuals for individual damages. Inconsistent guidelines have been applied almost coercively to take the reconciliation process forward, but the outlook for restoring the livelihoods of victims from official evacuation zones remain unclear. Hence, as said in Chapter 1, I am afraid that Professor Atiyah's illusion that justice is realized by making large compensation payments is actually prevalent. On the other hand, communities which supported entire livelihoods of victims before the accident cannot be restored through individual compensation claims. However, if a community is rehabilitated, the livelihood of victims can be restored and future losses (damages) will be mitigated. Drawing on the experiences of the Fukushima accident, a community perspective should be embedded in a victim indemnification scheme for nuclear accidents, in addition to the indemnification of infringements of victims' personal rights and interests.

2. The concept of a new nuclear damage indemnification scheme

This chapter will consider a new indemnification scheme for nuclear damages, drawing on the experiences of the TEPCO Fukushima accident and revisiting the fundamentals of Section 1 of the Nuclear Compensation Act which seeks to "contribute to the sound development of the nuclear business" as well as to "protect persons suffering from nuclear damage." Given great political controversy over whether to expand, retain or reduce and abolish nuclear business, the discussion herein will be focused on the victim protection scheme that will be required in the event a nuclear accident occurs when nuclear operations are continued and not consider political decisions on nuclear policy.

Acknowledging that a nuclear accident of the like should never be repeated, a new nuclear indemnification scheme is proposed. It is an

administrative indemnification scheme different from the current Nuclear Compensation Act, which is based on tort compensation law. Like tort compensation law, which seeks to individually redress infringements to an individual's rights and interests, it seeks to indemnify damages, but it takes a different approach regarding the damages to be compensated and the assessment of damages, as well as indemnification methods and procedures. The following framework is proposed to fairly and promptly address a diversity of claims for damage compensation by a wide range of victims which are expected to compile into vast amounts.

3. Compensation liability

(1) Persons liable for compensation: The nuclear operator (A) who caused the nuclear damages is primarily liable for the compensation to be made. All other nuclear operators (B) are secondarily responsible, followed by the national government (C). Details on how these parties should assume responsibility will be undermentioned.

(2) Grounds for liability: The nuclear operator (A) who caused the damages will bear strict liability for the damages. All nuclear operators (B), including nuclear operator (A), bearing indemnity liability will be obligated to make contributions for mutual assistance among operators. Similar to the second tier of financial protection under the U.S. Price-Anderson Act, explained in Part II, Chapter 5, which is a mutual assistance scheme among operators who are obligated to pay retrospective insurance premiums (c.f. page 44), it would be a legal obligation under the proposed mutual assistance scheme. It can be distinguished from the "lockstep" general contributions under the current Nuclear Damage Compensation Facilitation Corporation Act ("Facilitation Corporation Act") which fails to provide explicit legal grounds for such contributions. Nuclear operators would be obligated to pay a certain premium in private insurance for liability coverage (First Tier under the Price-Anderson Act), but if a nuclear accident causes damages in excess of the amounts pooled, the mutual assistance

scheme involving all nuclear operators (B) would be validated and nuclear operators would bear the retroactively assessed insurance premiums. The Government (C) is thirdly liable for approving and promoting nuclear operation with high risk which may cause unforeseeable damages, as a part of Japan's advanced technology and energy policies, determining the safety standards for the construction and operation of nuclear reactor and the processing of nuclear fuel, and being fully responsible for regulating operation of reactors. Unlike other industries, the nuclear industry is strictly regulated by the Government and must rigorously abide by national safety standards and regulations. However, the recent accident occurred despite the reactors' conformity with national standards and regulations. If the Government had implemented stringent regulations based on safety standards of an adequate level, the damages might not have been so massive. Given the Government's authority and obligation to prevent nuclear accidents, it could be said that the Government and nuclear operators are equally liable in a nuclear accident. However, under the proposed scheme, the Government would bear complementary liability for amounts corresponding the third tier of the Price-Anderson Act. The word "complementary" is employed because the Government must provide indemnities only when nuclear damages exceed the amounts available in the first and second tiers. However, the Government's responsibilities do not end here. As undermentioned, the damages imposed by a nuclear accident include many examples which diverge from ordinary damage compensation cases (c.f. Part III Chapter 2). In radiation-contaminated areas that have been officially designated evacuation zones, the residents have been forced to evacuate (restricted habitation) and in some of these areas, decontamination measures are being taken. The guidelines formulated by the Reconciliation Committee and Article 44 of the Act on Special Measures concerning the Handling of Pollution by Radioactive Materials provide that such damages and decontamination costs should be compensated for under the Nuclear Compensation Act. However, as explained in Part III Chapter 2, such damages which are not accompanied by actual infringements upon property rights or bodies have not been considered

to be covered by damage compensation. Furthermore, the Government is fully involved with the designation of evacuation areas and the termination of evacuation instructions. In designating evacuation zones did the Government rely on verified scientific standards? The Government will surely consider the progress made in national and local rehabilitation plans as well as local radiation dosages upon lifting habitation restrictions. The Government (the Ministry of the Environment) is also responsible for determining what level of radiation dosage is required for decontamination and which decontamination methods are to be employed. If the Government should make inappropriate judgments, decontamination costs will surge (c.f. page 72 and succeeding pages). As the categories and scope of these damages are subject to government decisions, the Government bears responsibility for the appropriateness of these decisions. However, if this Government responsibility is sought for as the liability under Act Concerning State Liability for Compensation, it would be difficult to prove negligence and the illegality in the Government's decision. As undermentioned, under the new nuclear damage indemnification scheme, both damages which have been covered and not compensated under the conventional compensation law shall be indemnified (compensated) as nuclear damages. Damages caused by evacuation and decontamination would be appropriately shared by the Government and the nuclear operator. The Government bears liability for the generation and expansion of costs through its involvement in evacuation and decontamination. The Government, as a public institution, is also responsible for administrating the nuclear indemnification scheme.

4. Administrative committee

The Government should establish an administrative committee (Nuclear Damage Indemnification Adjustment Committee) to address the indemnification of damages imposed by a nuclear accident. The committee would be responsible for administrative procedures concerning the payment of indemnities.

The administrative committee would operate with a small membership under ordinary circumstances to manage the pooled amounts under the nuclear indemnification scheme, cooperate with nuclear operators and the private insurance industry in compiling information on the indemnification of damages resulting from nuclear accidents and deliberate rules regarding indemnification. However, once an accident occurs, the committee is structurally rearranged to be capable of coping with claims for massive and diverse nuclear damages and then investigates the status of nuclear damages and determines the damage categories to be compensated as well as payment classifications. Government payments would also be determined for particular damage categories.

Although the administrative procedures will be assumed by the administrative committee, it would be efficient to have private insurance companies assist in the acknowledgment of damages. When victims entitled to indemnities are widespread, the local government should be commissioned with procedures including checking the qualifications of recipients of indemnities and determining the indemnity amounts. This is because indemnity payments must be executed promptly and efficiently.

5. Nuclear damages to be covered by indemnities

Drawing on the Fukushima accident, it would seem that for fair and prompt redress, damages should be categorized and indemnities should be calculated with a standardized formula under fixed conditions. In the aftermath of the Fukushima accident, compensation payments have been made for damages induced by harmful rumors and pure economic losses which are not usually compensated for and can be problematic as discussed in Part III Chapter 2. Therefore the proposed nuclear indemnification act would acknowledge indemnities for certain unconventional indirect damages based on a standardized formula with an upper limit, in addition to direct damages (infringements on property rights and physical bodies), conventionally

acknowledged without contention. For example, the business losses suffered by an evacuee would be acknowledged, but indemnities would be calculated according to a standardized formula by taking into consideration various circumstances including the prospects of employment and livelihood at their new address as well as local circumstances. Damages from harmful rumors which are basically not granted indemnities will be indemnified to a certain upper limit according to distance and temporal circumstances. Costs of decontamination should fundamentally be borne by the Government, since decontamination constitutes a part of the Government policies for the safety of local residents and environmental conservation and is not originally covered by indemnity law. The damage categories to be indemnified under the proposed indemnification scheme should be defined as “nuclear damages” as in the amended Paris Convention on Third Party Liability in the Field of Nuclear Energy (“Paris Convention”) and the amended Vienna Convention on Civil Liability for Nuclear Damage (“Vienna Convention”). The administrative committee would determine the details of the categories, the calculation methods for indemnities and upper limits with reference to cases of indemnities paid under the Civil Code and insurance payments so that in the event of a nuclear accident it can formulate more specific rules in accordance with the status of the accident.

Victim relief may include not only monetary payments but also the provision of livelihood support and community services when necessary. However, such relief has its limits if in-kind benefits are to be provided individually. The residents of Fukushima suffered community losses which cannot be fully recovered through payments in money and livelihood support unless the community itself is rehabilitated. It may be possible to support community rehabilitation for the recovery of many evacuees as a part of the indemnification scheme once the state of emergency has passed, but it would be difficult to expand the framework of a nuclear indemnification scheme. However, considering the disastrous consequences imposed upon communities in nuclear disasters, the organic integration of relief provided under an indemnification scheme and a post-disaster rehabilitation plan could

help embed the restoration of livelihood through indemnities in the process of community rehabilitation and bring relief measures closer to what is desired by victims.

6. Relationship with tort compensation

A nuclear indemnification framework with a different approach to damages and indemnification procedures compared to conventional tort compensation laws may pose questions of its relationship with damage compensation claims under the Civil Code. Compensation claims for nuclear damages made under the Civil Code could be integrated into the new nuclear indemnification scheme, but considering the standardization of payments and the provision of indemnities through an administrative process, victims who are unsatisfied by the payments received through the new indemnification scheme cannot be discouraged from bringing an action to the court. Therefore, a victim of a nuclear accident may choose to bring an action against the nuclear operator on the grounds of strict liability as stipulated in the new nuclear indemnification act (New Nuclear Compensation Act) from the very beginning, or he/she may choose to primarily request the administrative committee indemnification as provided under the new Nuclear Indemnification Act and take the case to court, bearing the burden of proof regarding damages, when the indemnities are unsatisfactory. In the latter case, the rulings of a civil law court could contradict the judgment made by the administrative committee under the new nuclear indemnification act as the new law would not necessarily adopt the adequate causation theory of tort law. The compensation amounts awarded by the court would be paid in short of indemnities already paid under the new indemnification scheme. With both frameworks sharing the aim of recovering the losses suffered by victims, payments made under one framework is regarded as having been paid under the other framework as well.

7. Exemption reasons

How should the new nuclear indemnification act address exemption reasons? In light of the approach taken by the proposed nuclear indemnification act to make indemnity payments based on explicit requirements, exemptions should be entirely eliminated to avoid the recent Government interpretation of “an exceptionally grave natural disaster” to be something that is “unforeseeable by humans,” and hence have the Government maintain financial security (insurance).

8. Strict and limited liability of nuclear operators and the Government’s indemnification

Although nuclear accidents occur very rarely, they can cause extremely grave damages once they occur. As mentioned in Part III Chapter 1, tort compensation law should ensure foreseeability on the perpetrator’s part while pursuing the relief of victims. However, the current Nuclear Compensation Act deprives nuclear operators of foreseeability by imposing unlimited liability under strict liability. Given opposition by the financial authorities at the time of its legislation, Government responsibility for indemnifying damages was not included in the Nuclear Compensation Act. As elaborated in Part II, overseas legislations stipulate Government involvement in some form, such as providing indemnities when nuclear damages exceed a certain amount. Prof. Urakawa’s discussions in Part III Chapter 3 should also be referred to.

The proposed nuclear indemnification act would also impose strict liability on the part of nuclear operators as in the current Nuclear Compensation Act, but takes a different three-tier approach based on the U.S. Price-Anderson Act (amended in 1988) in order to ensure nuclear operators foreseeability. The first tier would consist of private liability insurance and government measures to guarantee payments for damages such as those caused by earthquakes which are not covered by private insurance. When the damages caused by a nuclear

accident exceed the amounts available in the first tier, it would be supplemented by a second tier which provides a certain amount with an upper limit through a retroactive mutual assistance scheme among nuclear operators. If damages cannot be covered by funds available in the first and second tiers, Government indemnities would be provided. (Under the Price-Anderson Act, the President would formulate a government indemnity plan.) The Government bears responsibility for providing indemnities on the grounds already explained. Driving electric companies into bankruptcy by making nuclear operators bear unlimited liability, will not only impose merciless consequences upon victims who would end up not being able to receive indemnities for the damages suffered (refer to page 36 for statements by Hoshino) but also bring serious effects on electricity consumers. Although the Government does not have unlimited source of funds, should it not be responsible for providing indemnities in the third tier for promoting nuclear policy as national policy (refer to page 35 for historical background of excluding government compensation from the current Nuclear Compensation Act)? The exemption of nuclear operators from the third tier is likely to arouse strong opposition in Japan, which has conventionally taken the unlimited liability approach. Although the final decision should be made by political judgment, if the first and second tiers make available amounts that leave nuclear operators with barely enough funds for their continuity, the third tier should be entirely covered by the Government, unless there is evidence of negligence on the part of the nuclear operator that caused the nuclear accident. In other words, the limited liability of nuclear operators is proposed herein on the premise that the first and second tiers provide adequately large funds, because driving nuclear operators into bankruptcy would not be in the interests of victims.

Toward the Establishment of a New Compensation System for Nuclear Damages

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