### **Executive Summary**

### Toward the Establishment of a New Compensation System for Nuclear Damages

The 21<sup>st</sup> Century Public Policy Institute Nuclear Policy Issues Committee Nov. 14<sup>th</sup>, 2013

This report comprises 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 of being "privately run under national policy" was established and the background to the development of Japan's nuclear damage indemnification 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. Focus of this report

In Japan, electric power has been supplied by private companies enjoying 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 to ensure 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 often state-run, 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 backend operations<sup>1</sup>, 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 has 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, 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 operations with flexibility was very beneficial under normal circumstances, but the recent accident at Tokyo Electric Power Company (TEPCO)'s Fukushima Daiichi Nuclear Power Plant (herineafter, "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 (hereinafter, "Nuclear Compensation Act") stipulates the scheme for compensating victims of nuclear accidents and sharing the risk of accidents relevant to nuclear power operations. The Act provides for private-sector nuclear power operators

<sup>&</sup>lt;sup>1</sup> 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 "backend operations."

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 (hereinafter, "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 scheme under the 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 operations<sup>2</sup>, but many unresolved cases remain.

In addition, it became evident that relying only on monetary compensations could not restore the local community fractured by the Fukushima accident. This could be regarded as a fundamental flaw in the current victim reimbursement scheme.

The Nuclear Damage Compensation Facilitation Corporation had initially estimated that 5 trillion yen would be required for compensations and set up a support fund by issuing government compensation bonds. However, overall accident-related costs including those for decontamination and interim storage of contaminated soil are estimated to amount to as much as 10 trillion yen.<sup>3</sup> According to estimates announced by the Board of Audit on October 16, 2013, even in the event that 5 trillion yen were subsidized, it would take as long as 31 years to recover total costs.<sup>4</sup> The circumstances have induced the Government to become proactively involved in some 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

<sup>&</sup>lt;sup>2</sup> TEPCO "Records of Applications and Payouts for Indemnification of Nuclear Damage" www.tepco.co.jp/en/comp/images/jisseki-e.pdf

<sup>&</sup>lt;sup>3</sup> The Nikkei Shimbun, November 8, 2012 "Uncertainty in Implementation of Support for TEPCO: Government Addresses "10 Trillion" with Caution"

<sup>&</sup>lt;sup>4</sup> 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)

explicit and demarcated on ad-hoc basis, operators and other relevant 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 schemes that have supported the financing of electricity operations requiring large long-term investment. <sup>5</sup> One of the reasons that Japan has engaged private companies in electric power operations was, apart from fiscal constraints, is 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 sustain nuclear power operations 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 backend 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.

www.meti.go.jp/committee/sougouenergy/sougou/denryoku\_system\_kaikaku/pdf/report\_002\_01.pdf

<sup>&</sup>lt;sup>5</sup> 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.

# 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) which are more stringent than 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 make compensations.<sup>6</sup> Given the historical context that each country formulated its nuclear compensation scheme in acceptance of the U.S. demand of its export partners that American nuclear power facility manufacturers, such as General Electric (GE), would not be 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) Strict liability and concentration                         | Nuclear power operators are subject to strict liability and limited<br>immunity. Furthermore, in the event that an accident occurs due<br>to reasons on the part of the facility supplier, the operator shall<br>be solely liable.                               |
| 2) Range of application                                       | "Nuclear damages" to which the Nuclear Compensation Act shall<br>be applied are accidents that are attributable to reactor<br>operations.  |
| 3) Compulsory compensation measures                           | Compulsory subscription to private insurance and/or indemnity<br>agreement with government to secure the operator's ability to<br>pay  |
| 4) Limited compensation costs                                 | A maximum liability amount is set for compensation payments so<br>that the operator is not held liable for unlimited sums of money.<br>Japan, Germany and Switzerland have exceptionally not set<br>ceilings and therefore operators assume unlimited liability. |
| 5) Government compensation                                    | When operators are not capable of fulfilling all of the compensation payments, the government makes the compensations. *Japan's Nuclear Compensation Act does not include explicit provisions about compensation by the government.                              |

<sup>&</sup>lt;sup>6</sup> 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 nuclear damage compensation)* that i) strict liability, ii) limited liability, iii) concentrated liability, and iv) compulsory compensation measures are the four common principles of liability.

## 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 deliberated on 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) <sup>7</sup>, 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 had to address the Fukushima accident with the Nuclear Compensation Act in its original structure.

### 4. Overseas legal systems and international agreements

Overseas legal systems and international agreements that can be informative guides to the Japanese system. We summarized information on the U.S. and Germany's compensation scheme for nuclear damage and on the Convention on Supplementary

<sup>&</sup>lt;sup>7</sup> 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)

Compensation for Nuclear Damage (CSC). The U.S. Price-Anderson Nuclear Industries Indemnity Act (Price-Anderson Act) is based on limited liability, whereas the German law takes an unlimited liability approach. The Price-Anderson Act secures compensation measures amounting to the large sum of approximately 1.2 trillion yen through a 37.5-billion-dollar liability insurance and a 12.22-billion-dollar (11.19 billion dollars  $\times 1.05^8 \times 104$  reactors) mutual insurance arrangement. The mutual insurance arrangement takes an ex-post levy collection approach which contributes not only to securing a large sum worth of compensation measures but also to increased safety through peer reviews of one another's plant safety 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 ensuring operators that they can secure the necessary funds for investing in nuclear power plants. Therefore, the U.S. system is better than that of Japan in terms 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 liabilities, their apportionment and the procedure to be observed in this context shall be governed by an act or, pending such act, by statutory

<sup>&</sup>lt;sup>8</sup> Includes legal fees equivalent to 5% of levied insurance fees. (Section 170(e)(1)A))

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 (elaborated in Part II), which also does not grant exemption from liability, includes provisions for major disasters which stipulate that in the event the damages exceed the amount covered by the insurance pool 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 contradicting schemes. 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 pooled amounts. On the other hand, even under a limited-liability scheme, refusal to compensate for damages surpassing a certain upper limit will not be politically and socially accepted (unless the country is entirely 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 judgment by the government, President or the legislature can naturally be assumed. This consequently places the predictability of costs on the part of operators and the flexibility of the compensation scheme in a trade-off. 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 indemnifying victims. Nuclear damages are, in this sense, a matter of policy decision 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.

<sup>&</sup>lt;sup>9</sup> Lawmaker Takeo Tanaka and sworn witness Sakae Nagatsuma appropriately engaged in exchange on the very subject at the 14<sup>th</sup> meeting of the Special Committee for Science and Technology Promotion of the 38<sup>th</sup> Diet session.

kokkai.ndl.go.jp/SENTAKU/syugiin/038/0068/03804260068014a.html

### 5. The significance and challenges of addressing the Fukushima accident (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 Corporation Act was then established, attributing primary liability to TEPCO. Support from the government is covered by payments from the Nuclear Damage Compensation Facilitation Corporation to the national treasury (Corporation Act Section 59 paragraph 4), which will, in principle, be repaid in the future by TEPCO via the Facilitation Corporation. This public support scheme is more in the character of an emergency bridge loan than a relief measure for TEPCO using public funds or governmental compensation for the 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 enabling the provision of a stable supply of electricity; and 3) positive effects on financing by 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 concerning the legal justice of compensation costs to be shouldered by other operators through a levy; and 6) the limits to victim relief based on monetary compensation pursuant to torts of civil law.

#### 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) increased fuel costs for 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, The Japan Atomic Power Company (JAPC); and 3) given the technological challenges of the backend process, i) increased deficits due to delayed work on the part of JAPC, ii) increased costs 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 report<sup>10</sup> on the impacts to be imposed on electric power sources such as nuclear power that require large long-term investment in the face of 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.<sup>11</sup> In the U.S., the shale gas revolution has undermined the competitiveness of nuclear power, thereby triggering the freezing of plans, the decommissioning of reactors, and the corporate withdrawal of operators (France's EDF)<sup>12</sup>. The U.K., on the other hand, is rediscovering the significance of

Report of the Subcommittee on Electric Power Deregulation and Nuclear Power (Outline)

<sup>&</sup>lt;sup>10</sup> Draft Report of the Subcommittee on Electric Power Deregulation and Nuclear Power www.meti.go.jp/committee/materials/downloadfiles/g60519a03j.pdf

www.meti.go.jp/committee/materials/downloadfiles/g60607f03j.pdf

<sup>&</sup>lt;sup>11</sup> Nuclear Power in Competitive Markets www.oecd-nea.org/ndd/reports/2000/nea2569-dereg.pdf

<sup>&</sup>lt;sup>12</sup> Coverage includes: The Nikkei Shimbun August 6, 2013 "The 'economic efficiency' barrier of U.S. nuclear plants"

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.<sup>13</sup>

### 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 in to three parts to identify the schemes that must be reformed or improved and 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 (from 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 the compensation scheme for nuclear damages, which is based on tort law.

ii) Considerations of increasing the amounts made available by compensation measures

The Fukushima accident revealed that the current compensation measures were insufficient. Then, to what extent could the 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 studied non-insurance compensation measures

<sup>&</sup>lt;sup>13</sup> 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)

to increase amounts available for compensation, including the ex-post mutual insurance scheme under the U.S. Price Anderson Act in which operators are assessed a share of the excess, as well as the possibility of procuring funds from the capital market, that is, 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 to make it 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 the interest rates because nuclear accidents are not directly consequential of earthquakes and tsunamis exceeding a certain level. Despite increased volumes of catastrophe bond issuance in general, nuclear catastrophe bonds have yet not been issued anywhere in the world, presumably because the challenges described above are still 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), aroused concerns for increased public burden through electricity tariff raises , the impairment of stable power supply and imposed negative 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." <sup>14</sup> In addition to discussions regarding the legal justification of government compensation, we identified the issues to be considered if a scheme based on limited liability is were to be adopted:

- i) the infringement of a victimered if a scheme b
- ii) moral hazard in association with safety
- iii) a distribution plan for compensation payments
- iv) the reinstatement of operations
- v) effects of inhibiting the entrance of foreign capital in nuclear operations

In particular, the reinstatement of operations (iv) would seem to be acceptable, considering stakeholders' calls for the clarification of responsibility, and compatible to a

<sup>&</sup>lt;sup>14</sup> 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)"

certain extent with assertions that the fundamental principle of capitalism should be observed. However, various problems are likely to occur: a) the victims' right to claim compensation for damages would be subordinated to the bond-related lien or security interest in reorganization; b) the "reconstruction" of TEPCO under the Corporate Reorganization Act had initially been judged 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 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 related concerns.

Proposal 1: Treatment of victims'right to seek damage compensation as a common benefit claim<sup>15</sup> based on permission of the court.

### (Concerns)

- Can the requirements for court permission that such treatment is indispensible for reorganization and that equity 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 payment<sup>16</sup> in the reorganization procedures, in order to avoid conflict with legal common benefit claims such as tax collection rights?

<sup>&</sup>lt;sup>15</sup> A claim regarding the costs required for rehabilitation procedures and costs indispensible 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 indispensible 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)

<sup>&</sup>lt;sup>16</sup> It was noted that preferences should be placed on different common benefit claims, thereby discriminating "preferred common benefit claims".

Proposal 2: Fund procurement would still be possible even if the "general mortgage clausestill be possible even if oid conflict with 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 the "t would be technically praises 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 an exceptional clause in Section 3 paragraph 1. The experiences of the Fukushima accident revealed that "the comprehensive and flexible phrase, 'grave natural disaster of an exceptional character"<sup>17</sup> could cause 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<sup>18</sup>. 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 immunity<sup>19</sup>. In our report we have summarized the current status of nuclear

<sup>&</sup>lt;sup>17</sup> Takeuchi, Akio, Jurist 236 (tnihei.tumblr.com/post/5661848585/36-10-15-31-236)

<sup>&</sup>lt;sup>18</sup>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)

<sup>&</sup>lt;sup>19</sup> Based on information provided by Mr. Noboru Utatsu of Sompo Japan Nipponkoa Insurance Services Inc., material published by Japan Atomic Industrial Forum, Inc. (JAIF)

<sup>(</sup>www.jaif.or.jp/ja/seisaku/genbai/genbaihou\_series43.html), and Swiss Info

<sup>(</sup>www.swissinfo.ch/jpn/detail/content.html?cid=34224944)

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) Indications of liability concentration on operators

The Committee studied 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 vide informs have been highly under Government control and 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 government compensation should also be considered. Concerning whether or not the principle of concentration of 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 a statute of limitations, the former clause of Article 724 of the Civil Code on the restriction of period of 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 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 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 media, the Liberal Democratic Party (LDP) will extend the period of prescription for right of claim for nuclear damages to ten years at the extraordinary Diet session to be convened in October this year.<sup>20</sup> Given the wide diversity of responses required in accidents of different scales, it may be more reasonable to include the determination of the period of prescription in the decision on the scheme to address the aftermath of an accident. However, the provisions of the current Nuclear Compensation Act which left the Government with no choice but to demand flexibility on the part of TEPCO, the operator, based on political judgment should be amended in the future, in light of the results of investigations on the Fukushima accident.

### 2) Addressing major nuclear disasters

Many Committee members stated that the Fukushima accident destroyed scales, it may be more reasonable to include the determination of the period of prescription in the decision on the scheme to address the aftermath of an accident. However, the proviown of Namie by a group of Committee members also included many calls for the reconstruction of local community. Large-scale disasters such as the Fukushima accident cause damages that are not reimbursable with money and these damages hinder the reconstruction of the victimsare seeking the reconstruction of these lost hese lost calls forInterviereconstruct the local community must be made at an early stage after an accident and that 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 operator TEPCOit may be more reasonable to include the determination of the period of prescription in the decision on the scheme to address the aftermath of an accideNuclear Fuel Material and Reactors (hereinafter "Fuel

<sup>&</sup>lt;sup>20</sup> For example, Sankei News, September 21, 2013, etc. It should be noted that at the timing of writing this paper (October 28, 2013), details have not yet been announced. (sankei.jp.msn.com/politics/news/130921/stt13092116300001-n1.htm)

Material and Reactors (hereinafter termination of the period of prescription in the decision on the scheme to address the aftermath of an accide accidescription in the decision on the scheme to address levels, Japan's current legal system for nuclear power 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 must be envisioned, with the acknowledgement that it is a part of risk coverage and management measures for the use of nuclear power which secure mutual and complementary 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 within the limits of the resources available, how to prevent the damage from spreading, how to reconstruct 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 CSC<sup>21</sup>. The significance of becoming a party to CSC would be:

i) When a domestic manufacturer exports a nuclear power plant, liabilities for damages in any nuclear accident that occurs in the said country would be concentrated upon the nuclear power operator of the said country, provided that the export partner country is also a party to CSC. Therefore, Japan would be able to avoid business risks.

ii) In the event that liabilities exceed 300 million SDR<sup>22</sup> (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 nuclear accident that occurred in Japan will lie only with Japanese courts, even in the case of transboundary

<sup>&</sup>lt;sup>21</sup> 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 Education, Culture, Sports, Science and Technology, Novermber 2011 (www.jeli.gr.jp/report/jeli-R-126@2012\_11\_CSC.pdf)

<sup>&</sup>lt;sup>22</sup> According to the exchange rate as of September 30, 2013, 1SDR=1.534080USD

damages in other countries.

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

i) The need for clarification regarding who would shoulder the contributions to the fund and how it would be done

ii) The position of research reactors and other facilities with only compulsory compensation measures of small 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 liability, Japanese citizens must take jurisdictional 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 the laws of civil society which support market economy. Although the main purpose of damage compensation law lies in the indemnification of a victim's losses, it also gives regard to the individual's freedom of action in society. "Negligence" in determining liability is one such aspect, and as aforementioned, limited liability ensures actors predictability even in the case of strict liability. We also discussed adequate causation, which would limit the categories and extent of damages to be compensated for.

Chapter 2 elaborates further on the categories and extent of damages to be covered by compensations which were briefly explained in Chapter 1. In the Fukushima accident, compensation was acknowledged for categories of damage, such as those damages 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'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 limits

of compensation would no longer be predictable. Chapter 3 discusses the relationship between strict and unlimited liability and government compensation. In Germany, whose Atomic Energy Act also adopts strict and unlimited liability, it had been discussed that in the in the event that a major disaster where liabilities are expected to exceed the amount available, the State should consider the accident a national disaster that cannot be overcome through civil liability and take appropriate government compensation into regard. The Swiss law also provides for intervention by Parliament in the event the damages exceed a certain amount covered by compensation measures. 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 a separate but concurrent administrative relief process, such as that under the Law Concerning Pollution-Related Health Damage Compensation and other Measures. Furthermore, Chapter 4 proposes a fundamental amendment to the current Nuclear Compensation Act, which does not assume large-scale nuclear accidents such as the recent accident caused by TEPCO that imposes various 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 is to pursue "contributing to the sound development of the nuclear business" as well as "protecting persons suffering from nuclear damage," it is insufficient to burden operators with strict unlimited liability while the Government just provides loans to the Nuclear Damage Compensation Facilitation Corporation 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 treatment 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 these victims of the Great East Japan Earthquake and the Fukushima accident in hope of their early recovery from the disasters experienced.