

A photograph of a street scene in Japan. In the foreground, a road with white and yellow lane markings leads towards a building. To the right, a traffic light pole with two circular lights is visible. In the background, there are cherry blossom trees in full bloom, their pink flowers contrasting with the overcast sky. A building with a sign that reads '小未来の上' (Ko-mirai no Ue) is partially visible behind the trees. A red and yellow circular light fixture is mounted on a pole in the upper left corner.

Nuclear Compensation

Lessons from
Fukushima

*Meridian 180 Forums, Interviews
with Experts and Intellectuals*

Edited by Hirokazu Miyazaki



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This is the expanded edition of *Nuclear Compensation: Lessons from Fukushima*, containing the appendices from the Meridian 180 Forums and interview transcripts with experts and intellectuals.

The free online edition of this publication is available at nuclear-compensation.northwestern.pub. Also available is a free PDF download of the book.

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Front cover: “Nuclear Power, the Energy for a Bright Future,” Photo of a large sign in the Town of Futaba, Fukushima by Toshihiko Watanabe. All rights reserved.

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Nuclear Disaster Compensation

A CALL FOR ACTION

Nuclear energy provides 10% of electricity world-wide, a percentage that is likely to increase as nation-states work to fuel growing economies while limiting the devastating environmental effects of carbon-based energy sources. Yet, on the tenth anniversary of Japan's devastating triple disaster, we are reminded that nuclear energy imposes unique risks and burdens on citizens. Between 1979 and 2011, three reactor meltdowns, with distinct causes and effects, have forced communities to deal with the insidious consequences of radiological contamination. Radionuclides, in contrast to many other by-products of energy production, require the interventions of experts to sense and assess their danger. They cannot be readily smelled, tasted, heard, seen, or felt. The pathways of exposure, moreover, are multiple and include full body exposure, inhalation, and consumption of contaminated food sources. Many of these radionuclides linger in environments for decades, centuries, and even millennia in some cases. These features of radiological harm place people affected by radioactive fallout in a difficult position. They must rely on experts to regulate the risks of a disaster and, afterward, to assess its effects and provide a means of redressing their injuries. Across three major disasters—Three Mile Island in 1979, Chernobyl in 1986, and Fukushima in 2011—those affected by nuclear reactor meltdowns have been forced to navigate complicated administrative

and legal compensation regimes in an attempt to rebuild their lives and communities. Tax-payers and power companies' rate-payers, meanwhile, have borne many of the financial burdens of these disasters. When a major nuclear disaster occurs, its effects reach deeply into economy and society, and more often than not these effects extend to people far away from the accident's geographic location.

The fact that up until now, severe nuclear accidents have occurred only rarely, along with the stigma attached to anticipating and planning for nuclear catastrophe, means that public debate on nuclear disasters tends to recede into the background quickly. However, there are important issues that deserve to be addressed in more than an ad hoc fashion; one of them is compensation for victims of nuclear disasters. This report shows that compensation plans have not met the needs of victims of nuclear disasters for three primary reasons:

1. Compensation plans have been devised by unelected officials and without full public knowledge or participation.
2. Governments have often capped the liability of the owners of nuclear facilities, which distorts cost-benefit analysis and creates a moral hazard.
3. International conventions limit compensation and responsibility for nuclear disasters. Both Chernobyl and Fukushima demonstrate that these limits may be too low.

Due to the complexity of nuclear technology and our limited understanding of potential failures, our starting assumption is that there will be additional severe accidents at nuclear reactors in the future.¹ In this context, we suggest that issues of compensation be part of nuclear emergency preparedness and response planning. In this report we call for the creation of a forum that enables laypersons and experts to engage in an ongoing conversation about nuclear disaster compensation issues before the next disaster occurs. The forum should include the many groups that are affected by nuclear power and disasters, including nuclear industry representatives, government officials, project finance specialists, political leaders, victims of past disasters, potential victims, taxpayers, and ratepayers. Many methods for enabling conversation between experts and their publics have been developed and so this forum may take a variety of forms, including as a consensus conference. It could take place online and/or include online components. With this report we invite your suggestions for methods of achieving this conversation, as well as your participation in this dialogue.

The final form of the forum must enable three goals. First, a deliberative conversation about nuclear disaster compensation must be **anticipatory**—that is, it must take place prior to the disaster occurring. Many dedicated professionals are working to prevent future disasters, but the case studies presented later in this report show that governments on the whole have not fully prepared for nuclear disasters before the disasters have occurred. In short:

- ◆ Plans have failed to anticipate the magnitude and types of harms that people experience after disasters, or precisely how people will be compensated.
- ◆ Some plans have created loopholes for “natural” disasters, which may not ensure that owners of nuclear facilities adequately prepare for environmental hazards.
- ◆ Organizational sociologists have shown that interactive complexity and tight coupling, as well as our limited understanding of system properties, make disasters “normal,” even with the best possible management and governance structures in place—and the real world is far from the best possible world.
- ◆ The problem of nuclear disaster compensation has often been marginalized by assurances that the probability of a disaster is very low. As a result, citizens have too often accepted plans for nuclear power because they are assured that a disaster is extremely unlikely, and citizens have not understood the possibly catastrophic consequences of a disaster. However, history shows that this assumption is flawed. Nuclear disasters have repeatedly occurred, and they will almost certainly continue to occur.

The tendency to explain each nuclear disaster as an anomaly—an *unusual* case of operator error, irresponsible governance, poor engineering, or all of the above—only serves to reinforce the misguided faith that nuclear disasters can be entirely prevented.

This leads to the second goal of a forum on nuclear disaster compensation issues: deliberations must be **participatory**—that is, they must include the ordinary citizens who have been impacted or are likely to be impacted by a nuclear disaster, as well as nuclear engineers, medical doctors, environmental scientists, and other experts who have specialized knowledge relevant to disasters. We recognize, though, that participatory governance of science and technology faces challenges, especially as experience with

participatory governance shows that not all groups are able or permitted to contribute equally. Citizens who participate in decision-making about nuclear power are often economically disadvantaged. They do not “choose” to accept the risks of living and working in proximity to nuclear power and nuclear waste disposal. While those who work in the industry are eager for the jobs and economic opportunities that nuclear power and waste disposal are seen to offer, others are often constrained by financial and historical circumstances. Even when these citizens “participate” in nuclear decision-making, for example as rate-payers, they are rarely on equal footing with governments and corporations. The experts who play an outsized role in framing problems and solutions instead give citizens simple yes-or-no votes in otherwise complicated processes.

A truly participatory forum would recognize the extremely broad group of people who are affected by nuclear disasters and enable them to help frame problems and solutions. Nuclear disasters affect not only the people living close to nuclear facilities, but also everyone in the path of the fallout, which can spread around the entire globe. It affects the costs and reliability of electricity for all persons on the electrical power grid. And it affects the livelihood of agricultural workers and the supply of food that they provide. A participatory forum would also ensure that all of these citizens understand what they might lose in a nuclear disaster. The impacts of previous disasters must be fully visible to those considering accepting such risks. We can begin to create a more participatory forum by broadening conceptions of expertise to include forms of knowledge that have historically been marginalized in decision-making about nuclear power. This includes local knowledges about natural and built environments as well as economic practices and interdisciplinary knowledge about disaster response and recovery.

This leads to the third goal of a conversation about nuclear disaster compensation: it must be **transnational** because nuclear disasters do not respect national borders. Although methods for participatory governance have proliferated in recent years, most of these experiences have been confined to single nations or localities.² Nonetheless, there are models for a transnational forum.³ Nongovernmental organizations often gather alongside intergovernmental meetings on climate change. A transnational conversation should include decision-makers and citizens from nations that are considering investing in nuclear power. Such nations should explicitly consider the risks of nuclear disasters in their planning. The costs of disaster compensation may go beyond compensating citizens in the state where a catastrophe occurs. Large-scale nuclear disasters may also impact

neighboring nation-states, others in the international community, and international environments, such as the high seas. Again, current international agreements strongly limit compensation and responsibility for disasters.

In sum, we are calling for a dialogue that is **anticipatory, participatory, and transnational** to best enable wiser decisions about nuclear power and its many consequences. We invite your ideas about possible forums that can move the conversation forward.

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Dai Yokomizo



1. See Downer 2011
2. See, e.g., Chilvers and Kearnes 2020, 347-380; Irwin 2006, 299-320; Laurent 2011, 649-666; and Lezaun, Marres, and Tironi 2017, 195-221
3. See Riles 2018, 175-185 for an articulation of a model of dialogue between experts and citizens."

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Preface

Hirokazu Miyazaki

On March 11, 2011, a magnitude 9.1 earthquake hit northeastern Japan. A massive tsunami that followed the earthquake damaged the cooling systems of the reactors at Fukushima Daiichi Nuclear Power Plant leading to meltdowns and explosions. Ten years later, residents and former residents of the areas severely affected by the nuclear disaster continue to struggle to recover from the damage they sustained and reconstruct a dignified everyday life. Nearly 30 collective lawsuits have been filed against the Japanese government and Tokyo Electric Power Company (TEPCO), the operator of the troubled nuclear power plant. These lawsuits, as well as transborder claims filed in US courts by Fukushima residents and US servicemembers who participated in rescue operations following the disaster, have exposed the limitations of the current domestic and international legal regimes for nuclear damage compensation.

Nuclear Compensation: Lessons from Fukushima is the result of five years of international collaboration by the Meridian 180 Global Working Group on Nuclear Energy. The working group was originally founded at Cornell University in 2016 as a joint project of the Mario Einaudi Center for International Studies at Cornell University and Meridian 180, a trans-Pacific network and platform for transnational collaboration supported by the Jack G. Clarke Program in East Asian Law and Culture at Cornell Law School.

We gratefully acknowledge the contributions of Cornell Law School and Cornell University's Mario Einaudi Center for International Studies, where this project began, and our continuing collaborations with the Einaudi Center's Judith Reppy Institute for Peace and Conflict Studies and East Asia Program. We thank Cornell Law School Deans Stuart Schwab and Eduardo Peñalver, as well as Vice Provosts for International Affairs Fredrik Logevall and Laura Spitz, for their generous support. Special thanks are due to Einaudi Center staff, especially Nishi Dhupa, Heike Michelsen, Jonathan Miller, and Joshua Young for their support of many kinds during the early stages of the project. We also thank Naoki Sakai and Chika Watanabe for their help with the preparation of supplementary materials, originally created for a conference sponsored by the Einaudi Center and Cornell Law School on the first anniversary of Japan's earthquake, tsunami, and nuclear power plant accident. We are deeply indebted to Rebecca Slayton for her continued intellectual support for the project as a whole.

The project's focus on nuclear damage compensation grew out of a series of brainstorming sessions and online forum conversations hosted by the Einaudi Center and Meridian 180 in the spring of 2016. We thank all the participants in these conversations, which included nuclear energy experts, legal experts, project finance specialists, environmental activists, anthropologists, science and technology studies scholars, policy studies scholars, and legal scholars from Australia, China, Japan, South Korea, Taiwan, the US, and Europe. We especially thank Leigh Bienen, Haejoang Cho, Naruhito Cho, Yuji Genda, Mitsuhiro Hayashi, Vincent Ialenti, Eunice Kim, Jonathan Miller, Hiroyuki Mori, Kim Eric Möric, Takayuki Kihira, YJ Kim, and Rebecca Slayton for their valuable guidance of many kinds during this process. We also thank Chiaki Tanuma and Tetsuomi Hishinuma for hosting some of these early conversations.

Early versions of the report were presented at a press briefing organized by Takao Suami at Waseda University in Tokyo, the Cornell Asia-Pacific Leadership Conference in Hong Kong, and a press briefing held in Brussels in 2017, as well as at a "Day with Northwestern" event in 2019 and the "Energy Ethics 2020" conference at the University of St. Andrews. We thank all those who posed challenging questions at these occasions.

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Introduction

NUCLEAR COMPENSATION

Hirokazu Miyazaki

What lessons ought to be learned from the nuclear disaster at Fukushima Daiichi Power Plant following Japan's earthquake and tsunami of March 11, 2011? This question has been asked many times since the disaster. Nuclear regulators, industry experts, policymakers, and citizen activists in Japan, the US, and elsewhere have studied the accident carefully in search of lessons. For example, immediately following the accident, the US Nuclear Regulatory Commission established a taskforce to investigate the Fukushima disaster. The taskforce proposed a long list of technical recommendations for making the US regulatory framework more coherent, but it essentially concluded that Fukushima was not directly relevant to situations in the US given that the accident was caused by a natural disaster of an unprecedented scale:

The current regulatory approach, and more importantly, the resultant plant capabilities [in the United States] allow the Task Force to conclude that a sequence of events like the Fukushima accident is unlikely to occur in the United States and some appropriate mitigation measures have been implemented, reducing the likelihood of core damage and radiological releases. Therefore, continued operation and continued licensing activities do not pose an imminent risk to public health and safety.¹

In contrast, and yet not necessarily in contradistinction to this conclusion, Japan's National Diet Fukushima Nuclear Accident Independent Investigation Commission blames the "collective mindset of Japanese bureaucracy," especially those in charge of Japan's energy policy and regulatory oversight of utility companies:

[The accident's] fundamental causes are to be found in the ingrained conventions of Japanese culture: our reflexive obedience; our reluctance to question authority; our devotion to 'sticking with the program'; our groupism; and our insularity...

This [mindset] led bureaucrats to put organizational interests ahead of their paramount duty to protect public safety.

Only by grasping this mindset can one understand how Japan's nuclear industry managed to avoid absorbing the critical lessons learned from Three Mile Island and Chernobyl; and how it became accepted practice to resist regulatory pressure and cover up small-scale accidents. It was this mindset that led to the disaster at the Fukushima Daiichi Nuclear Plant.²

If Japanese culture, reflected in the culture of Japanese bureaucracy, is the problem, however, there is little that can be done by way of policy reform.³ Likewise, there is little that can be learned across national boundaries. The premise of the report is that Japanese culture does not fully explain the disaster response and that there are valuable lessons to be learned for other nations operating nuclear power plants.

Despite the powerful argument put forward by sociologist Charles Perrow that accidents like nuclear power plant accidents are "normal accidents" to be expected of any complex technical systems and will happen regularly,⁴ there is a persistent perception globally that nuclear accidents are anomalies. This perhaps has much to do with the rarity of serious nuclear accidents. To date, only two, one in Chernobyl in 1986 and the other in Fukushima in 2011, have been classified by the International Atomic Energy Agency (IAEA) as level 7 "major" accidents. Whereas the Chernobyl accident has been attributed, at least implicitly, to Soviet technocracy, the Fukushima accident, as noted earlier, has been attributed to the Japanese group-oriented "mind-set," on the one hand, and the unprecedented scale of the March 11, 2011 tsunami, on the other. The 1979 accident in Three Mile Island, Pennsylvania was far less severe than the accidents in Chernobyl and Fukushima. According to the IAEA it was a level 5 accident; that is, an "accident with wider consequences." A report compiled by the Union of Concerned Scientists observes:

*Fukushima triggered extensive “lessons learned” reviews in Japan, France, the United States, and elsewhere. Many lessons have indeed been learned, but to date few have been promptly and adequately addressed—at least in the United States. The reason, of course is the prevailing mind-set.... In the United States, “It can’t happen here” was a common refrain while details of the Fukushima accident were still unfolding.*⁵

The present report seeks to illuminate lessons from Fukushima in two different registers. First, the report draws attention to lessons learned by and for ordinary citizens—particularly, victims of the Fukushima disaster, not nuclear experts or regulators. Other energy sources, such as fossil fuel, hydro power, and even wind, solar, and other renewable energy sources, each also come with social and environmental costs, and issues of compensation have been discussed in relation to various kinds of damage associated with these energy sources. There are issues raised in these cases that are similar to issues examined in this report (e.g., artificial boundaries created concerning compensation eligibility, inequality, and other secondary problems arising from the distribution and use of compensation funds, etc.), but the profoundly uncertain nature of damage associated with radiation exposure—especially, their invisibility, randomness, and long temporality, generates a distinctive set of practical and policy challenges.⁶

There have been new forms of civic engagement and learning, including citizen-driven collaborative radiation monitoring and other efforts of “citizen scientists,” arising from their distrust of politicians, bureaucrats, and experts. This in turn suggests that “Considerable potential and capacities exist for technoscientific creativity and informed collective learning in the Japanese public, sensitized to the threats of nuclear disaster. ... We could do worse than adopt this emerging concerned group of radiation monitoring amateurs as an important component of a blueprint for change.”⁷ This report calls for the incorporation of these citizens’ voices and concerns from below into policy recommendations for the future use and management of nuclear energy.

Second, the report seeks to address the present needs of Fukushima rather than simply anticipate future possible disasters and their fallout. Despite assertions by the government and the Tokyo Electric Power Company (TEPCO), the operator of the power plant, that the accident in Fukushima has been largely contained, there are many dimensions of the disaster that are at least arguably still ongoing and will likely be so for some time to come. For example, tanks used to store contaminated water used to keep the troubled reactors cool are full and reportedly leaking continuously into

the Pacific Ocean through underground waterways. Likewise, it appears that the removal of fuel from spent fuel pools and other challenges associated with the long-term decommissioning process are progressing slowly.

One dimension of the disaster that is clearly still unresolved is damage compensation. Nuclear compensation has not been a focal issue of the extensive studies of either the Fukushima disaster or the other two historically significant nuclear accidents. The nuclear meltdown at the Fukushima Daiichi Power Plant caused the contamination of a vast area of Fukushima Prefecture and robbed thousands of local residents of their homes, communities, ancestral homelands, and sense of everyday normalcy. No deaths have been attributed directly to the accident, but over 1,500 lives have been lost due to physical and mental stress related to evacuation. Since the disaster, TEPCO has already paid over 9.7 trillion yen (approximately 92 billion US dollars) to victims of the accident through a compensation mechanism set up for the accident.⁸ This is by far the largest amount of damage compensation ever paid to victims of a nuclear disaster anywhere in the world and is possibly the highest amount of compensation paid for any industrial disaster, including the disaster at Union Carbide's pesticide plant in Bhopal, India and BP's Deepwater Horizon oil spill in the Gulf of Mexico.⁹ Despite the large amount of compensation already paid to victims of the Fukushima disaster, many of the victims who have received compensation are not satisfied. There are others who have not been compensated for their losses at all due to the fact that their areas of residence were outside the mandatory evacuation zones (areas within 20 kilometers, or 12 miles, from the troubled power plant as well as some other areas stretching northeast beyond those areas). There are currently nearly 30 pending collective lawsuits against TEPCO and the Japanese government to address these concerns.¹⁰ Although the political, legal, and social situations surrounding the Three Mile Island and Chernobyl accidents were radically different from those surrounding the Fukushima disaster, it is important to remember that suffering and fear of health effects from radiation continue for the victims of these two earlier accidents as well.¹¹

This report focuses primarily on ongoing political, legal, and social issues concerning damage compensation and seeks to discern a set of lessons learned from and for victims' experiences of pursuing nuclear compensation. The report ultimately calls for a more inclusive dialogue about nuclear power plant accident damage compensation schemes with a view to establishing a broader framework for assessing their economic, public policy, and moral implications.

The Enigma of Nuclear Compensation

Nuclear compensation is a complex and peculiar subject. Many nuclear power plant accident damage compensation laws, such as the US Price-Anderson Nuclear Industries Indemnity Act of 1957 and Japan's Act on Compensation for Nuclear Damage, limit or explicitly exempt nuclear reactor manufacturers' liability.¹² These laws dictate that compensation claims should be directed at nuclear power plant operators, not manufacturers, which in turn are required to have insurance coverage for each nuclear power plant they operate through national and international insurance pools.

Issues regarding nuclear compensation are also governed by three international legal regimes: the OECD's 1960 Paris Convention on Third-Party Liability in the Field of Nuclear Energy and several supplementary agreements (Paris Convention); the Vienna Regime consisting of the IAEA's 1963 Vienna Convention on Civil Liability for Nuclear Damages and supplementary agreements (Vienna Convention); the IAEA Joint Protocol of 1988, linking the two regimes; and the IAEA's Convention on Supplementary Compensation for Nuclear Damage of 1997.¹³ Yet, not all countries with nuclear power plants are signatories to these international conventions. In fact, the US, the USSR, and Japan were not party to any of these international conventions at the time of their respective severe accidents. Even today, China, which has nearly 50 nuclear power reactors and is building more, and South Korea, which has 24 reactors and is actively seeking to export power plants to developing countries, are not signatories to any of the international conventions.

These domestic laws and international conventions were, at least originally, designed primarily to promote nuclear energy and protect the interests of the nuclear power industry.¹⁴ These legal regimes have not often been tested due to the rarity of major accidents. The Chernobyl disaster in particular did trigger reforms of these international legal regimes, and some domestic laws, to strengthen victim protections.¹⁵ These laws, however, continue to limit liability for operators and suppliers and limit compensation for victims, meaning that investors may continue to pursue nuclear energy without bearing the financial burden of compensation in the case of a major accident.¹⁶ The World Nuclear Association, which promotes nuclear energy and represents the interests of the nuclear industry, has compiled an overview of nuclear compensation schemes and identifies the following key "principles" of the global legal compensation regime:

- ◆ Strict liability of the nuclear operator
- ◆ Exclusive liability of the operator of a nuclear installation
- ◆ Compensation without discrimination based on nationality, domicile or residence
- ◆ Mandatory financial coverage of the operator's liability
- ◆ Exclusive jurisdiction (only courts of the State in which the nuclear accident occurs have jurisdiction)
- ◆ Limitation of liability in amount and in time¹⁷

The World Nuclear Association report asserts, "Altogether these principles ensure that in the case of an accident, meaningful levels of compensation are available with a minimal level of litigation and difficulty."¹⁸ The report also suggests that the compensation paid to victims of the Fukushima disaster so far is disproportionally (and irrationally) large considering the actual scale of the nuclear disaster.¹⁹

In contrast, in their 2014 article, Ken Lerner and Edward Tanzman, both from the Argonne National Laboratory, draw attention to the inadequacy of the US nuclear compensation scheme in light of the Fukushima disaster. Lerner and Tanzman point to the possibility that an accident of the magnitude of the Fukushima disaster would "overwhelm the resources currently available in the US system."²⁰ They also observe that the issue of compensation has not been a central concern of the recent policy debate about disaster prevention and preparedness and they urge a more careful study of the Fukushima experience and recommend "advance planning"²¹ focusing on compensation:

*If nuclear power is to be a component of efforts to reduce carbon emissions and mitigate climate change, it will have to be accompanied by the readiness to respond to accidents. Robust response capabilities, including mechanisms to compensate victims, are part of the social contract with communities hosting nuclear power plants.*²²

The hitherto most comprehensive study of Japan's nuclear compensation scheme set up for the Fukushima disaster is a 2013, award-winning Japanese-language book written by public policy studies scholar Noriko Endo, *Genshiryoku songaibaisho sendo no kenkyu: Tokyo Denryoku Fukushima Genpatsu jiko kara no kosatsu* [A Study of Nuclear Power Damage Compensation Schemes: Considerations from the Tokyo Electric Power Corporation Fukushima

Power Plant Accident]. In it, Endo closely examines the process through which the Japanese compensation system for victims of the Fukushima disaster and its financing mechanism were developed and operationalized. Endo's study focuses primarily on domestic policy-making processes rather than victims' experiences, but it deserves detailed discussion here given that the book is currently only available in Japanese language.

Although the Japanese legal framework for nuclear compensation before the Fukushima disaster was largely in conformity with global standards for nuclear compensation, Endo draws attention to several distinctive features in the Japanese nuclear accident compensation scheme. For example, in the US, under the Price-Anderson Act, nuclear power plant operators are only responsible for a compensation amount up to the limit of what insurance companies have agreed to underwrite.²³ However, in Japan, under the Act on Compensation for Nuclear Damage, operators bear unlimited liability—a feature that prominent Japanese Civil Code experts originally protested.²⁴ Endo suggests that the law's assignment of unlimited liability to nuclear power plant operators resulted from the government's appreciation of the Japanese public's broadly shared sensitivity to the risks of nuclear power stemming from Japan's unique experience of the atomic bombings of Hiroshima and Nagasaki:²⁵

*The government took into account the public sentiment toward nuclear energy and the social situation at the time when it introduced a seemingly just and yet impractical system of unlimited liability as if it had guaranteed that nuclear power plant operators assume all liability in the case of an accident.*²⁶

As Endo notes, given the limited financial capacity of operating corporations, this is in actuality an unrealistic expectation. In fact, the law does stipulate that the Japanese government should work with the industry to design a financing mechanism for damage compensation when a major accident occurs. In other words, according to the law, the government is expected to provide “aid” if the amount of compensation required exceeds the operator's legally required insurance coverage.²⁷ The mandatory coverage is currently 120 billion yen (approximately 1.1 billion dollars) for each power plant and remained unchanged after the Fukushima disaster. Endo points out, however, that the law is silent on the specific responsibility the government ought to bear in the case of an accident.²⁸

In Endo's view, this “ambiguity” allowed the Japanese government to quickly and flexibly devise a mechanism for processing and financing

damage compensation following the disaster in Fukushima.²⁹ It is important to note that immediately after the Fukushima disaster there was a heated debate about a particular clause in the Act on Nuclear Damage Compensation cancelling nuclear power plant operators' liability in the case of an accident resulting from a "grave natural disaster of an exceptional character."³⁰ As Endo observes, the application of this indemnity clause would have led to a series of contentious lawsuits about TEPCO's responsibility. It would also have forced the government to use public funds to meet damage compensation claims.³¹ The government ultimately deemed this clause non-applicable for political reasons.

The Japanese government eventually designed a compensation mechanism based on its experience of managing Japan's banking crises since the early 1990s.³² This was ironically apt given that the Fukushima disaster also triggered a national financial crisis. TEPCO was, and still is, a major corporation enjoying a de facto regional monopoly in the greater Tokyo area electric power market. Prior to the accident, TEPCO bonds were rated as equivalent to Japanese Government Bonds in terms of their creditworthiness, and they were held by practically all major Japanese banks and other institutional investors as part of their investment portfolios. The value of TEPCO shares dropped sharply after the accident and there was a broad concern among TEPCO's creditors, major banks, insurance companies, and pensions funds about the possibility of its default.³³ TEPCO was quickly regarded by the Japanese government as "too big to fail."³⁴ From the outset, damage compensation was estimated to exceed 4 trillion yen (40 billion dollars), and establishing a financially viable and timely mechanism for processing compensation claims was one of the Japanese government's most urgent tasks. The government needed to act quickly to ensure the financial stability of the operator, TEPCO, but also the Japanese financial system as a whole. In particular, as Endo notes, the government's extensive experience using the Deposit Insurance Corporation of Japan to mitigate systemic risks from failing banks in the 1990s led to the creation of the Nuclear Damage Liability Fund.³⁵ This special vehicle for funding nuclear damage compensation is primarily financed through issuing Japanese government bonds and through contributions from all operators of nuclear power plants in Japan.³⁶

Endo's in-depth analysis focuses on the policy-making and political processes through which the Japanese compensation mechanism was developed for victims of the Fukushima disaster. This report in contrast seeks to evaluate the effectiveness of this compensation scheme through close and on-the-ground observations of the operation of the scheme in

Japan, and through a comparative study of the compensation schemes activated for all three of the Fukushima, Chernobyl, and Three-Miles Island accidents. The report seeks to introduce a fresh perspective on nuclear compensation by offering an analysis of victims' experiences of pursuing damage compensation.

Meridian 180's Engagement with Fukushima

This report is the product of a series of transnational cross-disciplinary and cross-professional conversations that Meridian 180, a multilingual platform for global collaboration, hosted together with scholars and experts based at Cornell University and other institutions since 2011 concerning the nuclear power plant accident in Fukushima. Meridian 180 was founded at the Cornell Law School shortly after Japan's earthquake, tsunami, and nuclear power plant accident on March 11, 2011 and has since become a collaborative endeavor of several universities in Australia, Japan, South Korea, and the US with over 1,200 members worldwide. The project has organized numerous online multilingual forums and in-person workshops and conferences about a broad range of transnational issues from cybersecurity to financial market governance and smart and shrinking cities. And yet Japan's Fukushima crisis has remained a compelling reference point for the project.

The nuclear disaster in Fukushima naturally surfaced as a focal point of debate for Meridian 180. This is not simply because Meridian 180 began in the midst of Japan's unfolding crisis partially created by the nuclear disaster, but rather because the nuclear disaster itself was deeply transnational in scope. The troubled reactors at the Fukushima Daiichi Power Plant were US-designed and the nuclear fuel used at the plant likely originated from countries such as Canada, Kazakhstan, Niger, Australia, Russia, and Namibia—six countries that supply over 85% of nuclear fuel worldwide. Radioactive clouds spread over the Pacific Ocean and contaminated water used to keep the troubled reactors cool has been flowing into the Pacific Ocean, meaning that victims of the accident include non-Japanese citizens such as US servicemembers who participated in rescue work following the disaster. Several cross-border litigations have been waged against TEPCO and the Japanese government.³⁷

Nuclear energy itself is also deeply transnational given its international security implications as well as its origins in efforts to find peaceful uses for nuclear power in the post-World War II world. Japan's nuclear energy policy has never been entirely independent of the country's national security concerns as well as US strategic interests.³⁸ The development of Japan's

nuclear energy in fact originates from negotiations related to the Agreement for Cooperation between the Government of the United States of America and the Government of Japan Concerning Peaceful Uses of Nuclear Energy, and a similar agreement made between Japan and the U.K. in the 1950s.³⁹

In light of the transnational currents the Fukushima disaster touches on, Meridian 180 recognizes that many issues we face in today's world are exceedingly complex and are simultaneously both highly technical and deeply social, cultural, and human. This is put into further relief as the disaster—and, specifically, what is widely regarded as its mismanagement on the part of the Japanese government and TEPCO—has exposed the socio-economic, political, and deeply human dimensions of complex technology. The disaster has moreover intensified public distrust for expertise and experts and has revealed a series of intellectual and policy challenges that today's transnational issues pose collectively. These complex global issues call for globally collaborative, cross-disciplinary, and cross-professional solutions incorporating diverse perspectives and values, as well as diverse forms of expert and non-expert knowledge. Meridian 180 seeks to offer a space for this broad consultation. In other words, what Meridian 180 strives to offer is a process for truly democratic conversation about critical issues of today's world. Meridian 180's engagement with post-Fukushima Japan described below serves as a model for this collaborative process.

Meridian 180's engagement with the Fukushima disaster and its after-effects began with the project's two inaugural online multilingual forums: "Cry from the Scene," proposed and facilitated by Naoki Kasuga, a renowned cultural anthropologist based at Hitotsubashi University, Tokyo, addressing the crisis of knowledge surrounding radiation and radiation exposure; and "A Grand Coalition for a Rise in the Consumption Tax is the Only Way," proposed and facilitated by Yuji Genda, an influential labor economist and public intellectual based at the University of Tokyo Institute for Social Science, addressing Japan's fiscal and political crisis following Japan's natural and nuclear disaster. These forums provided a distinctive space for transnational dialogues and reflections as Japan's crisis unfolded in the midst of confusion and uncertainty.

One year after the disaster, Meridian 180 once again hosted an online forum titled "How Can We Bring Closure to Crises?" Following the online forum, the project hosted a conference on the topic jointly with Cornell University's East Asia Program. In conjunction with this conference, Meridian 180 also recorded reflections on Japan's crisis by a broad range of experts, from anti-

nuclear activists to a humanitarian NGO leader, an architect, a lawyer, and an economist.

In preparation for the first Meridian 180 global summit in Okinawa in July 2016, Meridian 180 established a global working group focusing on the nuclear disaster in Fukushima. The working group included legal professionals, environmental activists, and social scientists from Japan, South Korea, Europe, and the US. The group first hosted an online forum on the future of nuclear energy and solicited input from a diverse group of scholars and professionals, including experts on nuclear energy. The dialogue included a former US nuclear regulator, experts on the accidents in Three Mile Island and Chernobyl, experts on environmental disasters, renewable energy researchers and activists, legal scholars and lawyers working with victims of the disaster in Fukushima, and project finance specialists and others working with the nuclear industry. These scholars and professionals also came from various parts of the world including Europe, the US, Japan, South Korea, China, and Singapore. Other Meridian 180 members who had not actively been involved in nuclear energy-related issues also offered valuable perspectives informed by their own expertise and experience.

The question of the economic, social, and other costs of nuclear energy quickly became a major focus of this dialogue.⁴⁰ The group discussed a broad range of costs, from the costs of nuclear power plant decommissioning to the costs of site clean-up and spent fuel storage to the human costs of uranium extraction.⁴¹ It became clear that the group needed to seek a fuller picture of the costs of compensation for nuclear disasters in order to make policy recommendations about the future of nuclear energy as part of a broader solution to climate change.

After three days of conversation, the issue of compensation emerged as a useful framework for the group's collaboration. Everyone was interested in this issue, albeit for entirely different reasons. Compensation is one endpoint of nuclear disaster management. The costs of nuclear energy certainly need to incorporate the costs of compensation. Most importantly, this is the phase in which a broad range of ordinary citizens are implicated as victims, ratepayers, and taxpayers. A resolution of the issue therefore requires not just the input of scientists and engineers but also engagement with civic activists, anthropologists who work with ordinary citizens, lawyers who work with victims, and project finance specialists who work with the industry and investors. The working group decided to conduct a comparative study of nuclear power plant accident compensation schemes

from this broad perspective. This study covers nuclear power plant accident compensation schemes in the US, the Soviet Union (and Russia and other successor states to the Soviet Union, such as Ukraine and Belarus), and Japan. The Meridian 180 Global Working Group on Nuclear Energy intends this report to serve as a fresh starting point for broader discussion about nuclear accident compensation schemes in a way that incorporates diverse perspectives, particularly victims' perspectives, and asks citizens to navigate the necessary political and economic tradeoffs and make the difficult policy choices.

Outline of the Report

This report consists of four chapters. The first chapter contains a set of brief reports written by scholars and activists working directly with victims of the nuclear disaster in Fukushima. The "Fukushima Team" of the Meridian 180 Global Working Group includes four previously unrelated individuals. Takao Suami is a professor of law at Waseda University. A specialist in EU law, since 2012 Suami has been involved in a legal clinic organized by a group of law professors at Waseda University to aid victims of the nuclear disaster in Namie and other municipalities in Fukushima Prefecture. Yuki Ashina is an attorney based in Shizuoka Prefecture. A graduate of a prestigious law school, Ashina chose to participate in the Japan Federation of Bar Associations' program to send young lawyers to rural parts of Japan where there are few legal professionals, and she spent the first two and half years of her legal professional career in Soma City, 31 miles north of the Fukushima Daiichi Power Plant. Since the nuclear disaster, Ashina has provided legal assistance for evacuees from Fukushima and has been involved in several claims and lawsuits against TEPCO and the Japanese government. Satsuki Takahashi is an environmental anthropologist who conducted her doctoral research in a fishing village near the Fukushima Daiichi Nuclear Power Plant. Takahashi has been conducting field research on families involved in fishery in Soma City. Nobuyo Fujinaga is a veteran civic activist based in Osaka who has been passionately involved in environmental and anti-nuclear activism.

The Fukushima team's chapter shows how the current Japanese framework for damage compensation, as expensive as it may be, still does not address a broad range of significant loss and damage sustained by victims of the disaster. Some victims have not received any compensation at all due to their residence outside the mandatory evacuation zones.⁴² Others feel that other kinds of loss and damage not recognized within the current

compensation scheme also ought to be compensated. These include the loss of ancestral homelands, social relationships, and normal daily life,⁴³ as well as other kinds of damage and loss not readily visible or calculable in monetary terms.⁴⁴

These limitations are, of course, not necessarily specific to nuclear compensation. Disaster damage compensation tends to create and deepen divisions among victims by introducing artificial boundaries of all kinds. It does not aim to compensate for every damage and loss sustained by those who see themselves as victims. It also tends to differentiate victims on the basis of residence, time spent in the area during the disaster, and other somewhat arbitrary criteria.⁴⁵

As Suami points out, however, damage caused by a nuclear disaster is particularly deep, multidimensional, and potentially long-lasting. Nuclear damage also goes beyond the usual scope of damage compensation focused on certain categories of individual damage and loss because a nuclear accident deeply affects local communities and environmental settings. There are ongoing collective lawsuits aiming to overcome these limitations within Japan's current legal framework, but the Fukushima team's chapter indicates that damage compensation may not serve as an adequate framework for addressing all of these concerns.⁴⁶ The Fukushima team suggests that social security, rather than damage compensation, may be a better model for responding to these simultaneously both highly individualized and deeply collective needs.⁴⁷

The Fukushima team's chapter draws attention to the specific temporal dimensions of a nuclear accident and their implications for the damage compensation framework. Satsuki Takahashi suggests that a nuclear accident damage compensation scheme should not only compensate for what has been lost but also for continuing and ongoing losses in the present as well as into the future.⁴⁸ Suami also points to types of damage that may not end in the near future. For example, the health effects of low-level radiation exposure are not well-known and anxiety about potential long-term effects is likely to continue for many years to come. Likewise, voluntary evacuees may face new challenges in their new locations and may encounter secondary damage.⁴⁹

The second and third chapters of this report are written by two science and technology studies scholars specializing in nuclear issues: Mary Mitchell, who has studied legal cases involving Marshall Islanders exposed to radiation caused by nuclear weapons testing in the Pacific, and Sonja

Schmid, who has written extensively on the Chernobyl disaster. What these chapters make clear is the fact that, at least on the surface, the three accidents—Three Mile Island, Chernobyl, and Fukushima—are not straightforwardly comparable. First, the three major accidents took place in three different specific situations—the US, the Soviet Union, and Japan, respectively—at three different historical junctures. Each accident has contributed to the revision of the associated country's regulatory and safety standards as well as the adjustment of compensation schemes, and each accident has led to the reevaluation, review, and in some cases, the amendment of existing international conventions. Yet, the Fukushima case shows that even large amounts of compensation do not fully address the loss and damage sustained by victims.

Second, the three accidents are also vastly different in terms of their respective gravity. Compared to the Chernobyl and Fukushima disasters, both of which have been rated by the IAEA as Level 7 major accidents, the Three Mile Island incident was relatively less severe and has been rated as a Level 5 accident by IAEA. In her chapter, however, Mitchell suggests that, precisely because of this difference, the Three Mile Island case offers a distinctive set of insights about “how the boundaries of nuclear compensation are drawn and contested when uncertainty abounds and causal linkages between incident and injuries are difficult to discern.”⁵⁰

Third, each accident took place in a distinctive legal and administrative framework. As Mitchell points out in her chapter, the three accidents have led to three different kinds of treatment of injury and compensation claims. Whereas administrative procedures have been developed for processing compensation for the Chernobyl and Fukushima disasters, compensation claims arising from the Three Mile Island accident were initially processed by private insurers of the power plant and later were addressed in “a series of long, arduous, costly, and ultimately unsuccessful legal disputes.”⁵¹ Mitchell uses extensive archival records to show how these legal cases have been blocked largely due to difficulties in producing satisfactory scientific evidence linking bodily symptoms to the accident.

Mitchell's chapter importantly shows that prior to the Three Mile Island accident, the only claims made under the US Price-Anderson Act were claims related to injuries sustained by nuclear power plant employees and contractors. These claims were all processed by the plant's insurers. Until the Three Mile Island (TMI) accident, in other words, many issues surrounding nuclear compensation within the legal framework of the Price-Anderson Act were largely untested: “The TMI incident now forced courts to

begin to interpret the Price-Anderson Act's untested provisions as a variety of claim types went into litigation—not least, residents' claims of injury."⁵² The federal government conducted scientific investigations on local residents' radiation exposure and concluded that their exposure was too low to cause any negative health effects. However, residents were skeptical about this conclusion and in fact began to exhibit some symptoms, and some developed cancer. Cancer can be caused by many factors, however, not only radiation exposure; it is difficult to prove the causal connections between symptoms and the accident, which created a challenge for the plaintiffs in the lawsuit related to the Three Mile Island accident. Mitchell shows how plaintiffs mobilized a broad range of experts in radiobiology, including experts on the Chernobyl disaster, to construct scientific evidence about bodily harm they experienced and changes in the local environment they observed following the Three Mile Island disaster. The court eventually ruled that most of the expert testimony be excluded. Instead, the court's decision relied largely on dose estimates conducted by federal agencies on the accident, which had failed to take residents' observations, concerns, and views into account. This trial court's decision was in turn confirmed by the Third Circuit Court of Appeals in 2002. Given the long-term and unpredictable future effects of radiation exposure, as demonstrated in the cases of atomic bomb survivors in Hiroshima and Nagasaki, however, compensation issues surrounding the Three Mile Island accident may not be declared completely settled yet.

Mitchell notes that, in the Three Mile Island accident, the private insurers of the power plant paid out approximately 71 million dollars, well under the plant's mandatory insurance coverage of the time. The US President's Commission on Catastrophic Nuclear Accidents set up in the aftermath of the Chernobyl disaster submitted a report calling on Congress to reconsider the Price-Anderson Act and institute an administrative system for processing compensation claims that would meet the demand of a potentially larger-scale accident than the one at Three Mile Island. The proposal was not implemented. More importantly, Mitchell points out, the commission did not consult claimants or victims of the Three Mile Island accident before making recommendations.⁵³ Mitchell suggests that "these suffering and at-risk communities should be brought to the table in a democratic, participatory, and anticipatory process—not after, but before the next disaster occurs."⁵⁴

As Sonja Schmid explains in this chapter, at the time of the Chernobyl accident there was no legal framework for handling nuclear compensation in the Soviet Union. Instead, the compensation scheme for victims of the Chernobyl disaster was based on existing procedures for processing

compensation and social benefits for war veterans, disabled persons, and others. Under this administrative process for processing compensation payouts, "privileges and compensations were determined according to the levels of radioactive contamination in the territories."⁵⁵ Twelve different levels of entitlement and compensation were developed according to different radiation dose levels and locations of residence. However, this scheme ultimately failed due to the Soviet Union's economic crisis and eventual collapse. Schmid observes, "Many of the benefits, privileges, and compensation alike, might have been enough and more or less effective in a system with full employment, state-owned housing, state-run medical and education systems and a controlled currency."⁵⁶ The history of the evolution of the compensation frameworks in Russia and other affected former Soviet countries shows how states have struggled with the definition of "affected" areas and persons. As medical anthropologist Adriana Petryna has powerfully shown, victims struggled to prove the harm they had sustained.⁵⁷

The three chapters on the Fukushima, Three Mile Island and Chernobyl accidents, respectively, amply demonstrate the limitations of existing compensation schemes. Each accident poses fundamental questions about what constitutes victimhood, what counts as damage, and how to prove the causal linkage between radiation exposure and medical symptoms in the context of a nuclear power plant accident. The fourth chapter, authored by three legal scholars, Mary Mitchell, Annelise Riles, and Dai Yokomizo, addresses issues raised by several trans-border lawsuits concerning compensation claims related to the Fukushima disaster. These lawsuits include cases involving US military personnel who participated in Operation Tomodachi, a disaster response operation completed by US military forces immediately following Japan's triple disaster. The authors discuss how Fukushima was not the first nuclear disaster whose impacts went beyond the borders of a single country. The Chernobyl disaster significantly affected many parts of Europe. After the Chernobyl disaster, however, the Soviet Union did not provide compensation for any harm resulting from the accident outside Soviet territory. At that time, the Soviet Union was not a signatory to any of the existing international conventions governing nuclear compensation, and various affected European countries handled compensation claims mostly internally within each country's framework for dealing with environmental disaster.

Mitchell, Riles, and Yokomizo note Japan was not a signatory to any international conventions at the time of the Fukushima disaster either, and this has ironically created opportunities for cross-border lawsuits for victims.

This is particularly ironic given that the Japanese government's initial hesitation to join the Convention on Supplementary Compensation for Nuclear Damage of 1997 (CSC) had much to do with the convention's impact on jurisdictional issues. The CSC gives jurisdiction to the country in which an accident occurs and prior to the Fukushima disaster, the Japanese government was reluctant to join because it would prevent Japanese victims of a nuclear accident in a neighboring country, such as China and Korea, from using the Japanese legal system to wage lawsuits against the operator of the troubled power plant.⁵⁸ At that time, the Japanese government perhaps did not take seriously the possibility of facing a nuclear disaster in Japan and its transnational repercussions. Precisely because Japan was not a signatory to the CSC at the time of the Fukushima disaster, however, TEPCO and the Japanese government can be sued outside of Japan for damage stemming from the disaster, and several lawsuits have taken advantage of this situation.⁵⁹

The cross-border lawsuits discussed by Mitchell, Riles, and Yokomizo challenge the current dominant framework for considering nuclear compensation. They tackle transnational legal issues likely to arise from a future major accident due to the pervasive lack of attention to cross-border issues as well as to the unevenness with which the international conventions govern nuclear compensation across national borders. The chapter offers legal strategies for pursuing compensation in cross-border contexts from the perspective of private international law or conflict of laws.

Keeping the Future in View

The disaster in Fukushima has certainly challenged the notion that nuclear energy is cheap. Given the negative health and environmental effects of uranium extraction in Africa and elsewhere, nuclear energy may not be as sustainable as it may seem. However, it is probably not realistic to envision a nuclear-free world in the near future. Given the distinctively long-range perspective nuclear energy demands due to issues such as spent fuel storage, reactor decommissioning, and disaster cleanup, nuclear energy expertise will inevitably be essential for years to come.

It is important to remember, however, that another accident will undoubtedly occur somewhere sometime in the future. More power plants are being built in China and other developing countries. Some of these countries are not signatories to any international conventions and their domestic compensation schemes and financial capabilities are not as robust as those in the US, Japan, and elsewhere in the developed world. More

significantly, trans-border conflicts similar to those arising from the Fukushima disaster will arise if a major accident occurs in countries that are not party to any international conventions. More attention needs to be paid to the issue of nuclear compensation, as part of preparedness and response efforts, as well as to the prevention of future nuclear accidents.

All the chapters in this report stress the importance of careful attention to victims' experiences with compensation schemes and lawsuits. Victims have never been part of the policy debate about the design of the domestic and international legal frameworks for nuclear compensation. From victims' perspectives, neither a system relying heavily on litigations, such as the US framework, nor the ad-hoc administrative schemes for processing compensation claims developed for Chernobyl and Fukushima victims have proved effective, for different reasons. Importantly, the Fukushima case demonstrates the limitations of both systems. Compensation paid so far is large but not sufficient. It is not enough for those who have received it because it does not even begin to address the much broader range of types of damage and loss that these victims have actually experienced. Moreover, the current compensation scheme does not address the grievances of many others who did not reside in the mandatory evacuation zones. Collective lawsuits against TEPCO and the Japanese government have seen some initial successes, but they are likely to face an uphill battle as they are appealed to higher courts, just like the long and ultimately unsuccessful lawsuit related to the Three Mile Island accident in the US.

The key lesson from Three Mile Island, Chernobyl, and Fukushima is this: victims and their concerns about and experiences with compensation schemes have been consistently ignored by governments and energy policy experts. This conclusion calls for careful attention to the specificity of each victim's individual case and claim as well as the breadth, depth, and distinctive duration of the impacts of a nuclear accident. This does not necessarily mean that a unique solution needs to be found for each individual case or that a blanket solution needs to be developed to cover all kinds of damage and loss claim in perpetuity. Rather, it demands listening carefully to victims and incorporating their concerns into the design of a compensation scheme, especially one that reimagines compensation beyond monetary terms. What is at stake here are massive inequalities in power, knowledge, and access to resources, all of which are not only pressing moral issues, but also potential impediments to the production of scientific knowledge and effective public policies. Indeed, compensation is not simply an economic or financial issue; there are limitations to what money can do to redress damage or loss. Compensation is a moral issue

that is intertwined with macrolevel public policy issues and microlevel personal issues.⁶⁰ In this sense, compensation is ultimately a matter of hope to the extent that it may allow victims as well as their society to move on and create new future relations.⁶¹ In light of the public distrust in expertise, such efforts may ultimately reach well beyond the nuclear energy sector.

At the minimum, this report calls for the establishment of an inclusive and ongoing process for incorporating diverse perspectives—especially those of victims, in the broadest sense of the term—in the continuous readjustment of nuclear compensation schemes. This report suggests that this simple step has never been taken largely because policy makers, regulators, industry specialists, legal professionals, and even the broader public persist in learning about only disparate and technical issues from nuclear disasters.

Svetlana Alexievich remarks in *Chernobyl Prayer*, “Chernobyl is, above all, a catastrophe of time. The radionuclides strewn across our earth will live for 50,000, 100,000, 200,000 years. And longer. From the perspective of human life, they are eternal.”⁶² She defines her book, a collage of stories about Chernobyl, as a chronicle of the future: “What lingers most in my memory of Chernobyl is life afterwards: the possessions without owners, the landscapes without people. The roads going nowhere, the cables leading nowhere. You find yourself wondering just what this is: the past or the future. It sometimes felt to me as if I was recording the future.”⁶³ What this report offers is nothing short of a glimpse of the ongoing struggles to keep this futurity in view while seeking a better way to prepare ourselves for and manage a future crisis. The lessons from Fukushima lie precisely in these struggles.



1. Miller et al. 2011, vii
2. Kurokawa, et al. 2012, 9
3. The impacts of the Fukushima disaster on Japan’s nuclear policy-making processes have not been straightforward. See Samuels 2013, 110-150
4. Perrow 1990, 5
5. Lochbaum, Lyman, Stranahan, et al. 2014, 247
6. Kuchinskaya 2014 See, e.g., Green and Baird 2016, 853-873; and Mayer, Running, and Bergstrand 2015, 369-390 for in-depth analyses of compensation issues related to relocation for the construction of a hydropower dam in Laos and the “Deepwater Horizon” oil spill case.

7. Morita and Kimura 2013, 94 See also Gill, Steger, and Slater 2013
8. Tokyo Electric Power Company, "Records of Applications and Payouts for Compensation of Nuclear Damage," February 5, 2021, https://www.tepco.co.jp/en/hd/responsibility/revitalization/pdf/comp_result-e.pdf.
9. As of July 2019, BP had paid approximately 12 billion dollars to over 130,000 unique claimants (Matt Sledge, "A Near-decade after BP Oil Spill, Now-public Payout Claims Run Gamut—including an Ex-NBA Star," New Orleans Advocate, July 2, 2019). It is important to note that the total cost of the oil spill for BP has reached approximately 69 billion dollars and includes the costs of cleanup and environmental restoration and civil settlements with federal, state, and local governments (See Marck Schleifstein, "BP and Its Partners Have Spent \$71 Billion over 10 Years on Deepwater Horizon Disaster," New Orleans Advocate, April 18, 2020. Union Carbide Corporation was ordered by the Supreme Court of India in February 1989 to pay 470 million dollars for the damage caused by the massive gas leak at Bhopal (See Sanjoy Hazarika, "Bhopal Payments by Union Carbide Set at 470 Million Dollars," New York Times, February 15, 1989).
10. Nihon Bengoshi Rengokai (Japan Federation of Bar Associations), "Bengoshi hakusho 2019-nen ban" (Attorney white paper 2019), pp. 140-141,
11. See, for example, Alexievich 2013
12. Significantly, India's Civil Liability for Nuclear Damage Act, 2010, includes a provision for manufacturers' liability. See Mohit Abraham's important discussion of India's distinctive approach to issues of nuclear damage compensation (Abraham 2014).
13. See also Mitchell, Riles, and Yokomizo, this report, Chapter 4.
14. Endo 2013, 25. See also Mitchell, this report, Chapter 2.
15. Endo 2013, 25-26, 57-81; Mitchell, this report, Chapter 2; and Mitchell, Riles, and Yokomizo, this report, Chapter 4.
16. Mitchell, this report, Chapter 2; Mitchell, Riles, and Yokomizo, this report, Chapter 4.
17. World Nuclear Association 2018
18. World Nuclear Association 2018
19. World Nuclear Association 2018
20. Lerner and Tanzman 2013, 591
21. Lerner and Tanzman 2013, 593
22. Lerner and Tanzman 2013, 594
23. See Mitchell, this report, Chapter 2.

24. Endo 2013, 47-48
25. Endo 2013, 43
26. Endo 2013, 44
27. *Act on Nuclear Damage Compensation*, Act No. 147, Section 16, 1961.
28. Endo 2013, 27, 40
29. Endo 2013, 51-52, 219-222
30. *Act on Nuclear Damage Compensation*, Act No. 147, Section 3, 1961. See Endo 2013, 153-162.
31. Endo 2013, 160
32. Endo 2013, 228
33. See, for example, Miyazaki 2014, 127-140
34. See, for example, Riles 2013, 555-569
35. Endo 2013, 227-251
36. Endo 2013, 244-248
37. See Mitchell, Riles, and Yokomizo, this report, Chapter 4.
38. Chunichi 2013. See also Penney 2012
39. Endo 2013, 30-31
40. See also Oshima 2011
41. See also Hecht 2012
42. See Ashina, this report, Chapter 1, Section III.
43. See Ashina, this report, Chapter 1, Section II; Suami, this report, Chapter 1, Section III.
44. See Fujinaga, this report, Chapter 1, Section III.
45. See Suami, this report, Chapter 1, Section III.
46. Suami, this report, Chapter 1, Section III.
47. Suami, Ashina and Takahashi, this report, Chapter 1, Section VII.
48. See Takahashi, this report, Chapter 1, Section IV.
49. Suami, this report, Chapter 1, Section V.

50. Mitchell, this report, Chapter 2.
51. Mitchell, this report, Chapter 2.
52. Mitchell, this report, Chapter 2.
53. Mitchell, this report, Chapter 2.
54. Mitchell, this report, Chapter 2.
55. Schmid, this report, Chapter 3.
56. Schmid, this report, Chapter 3.
57. Petryna 2002
58. Endo 2013, 105-108
59. Mitchell, Riles, and Yokomizo, this report, Chapter 4.
60. Koga 2013, 503
61. Miyazaki 2004
62. Alexievich 2013, 24
63. Alexievich 2013, 33

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The Compensation Scheme for the Nuclear Power Plant Disaster in Fukushima

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The accident at the Fukushima Daiichi Nuclear Power Plant, triggered by the Great East Japan Earthquake on March 11, 2011, is the most recent large-scale nuclear accident in the world. The main goal of our chapter is to make a contribution to global conversation regarding possibilities and limits of damage compensation when a nuclear accident occurs through providing detailed case studies based on invaluable lessons that we have learned from the Fukushima nuclear accident. We also hope that our chapter on the Fukushima accident will invite a broader discussion on our collective future relationship with nuclear power. With the goals in mind, our chapter presents a collection of brief reports, which are organized as Section I through Section VII.

Section I gives a brief overview of questions on disaster compensation. Section II provides a general outline of the current Japanese nuclear damage compensation scheme and its limitations. Section III reports on the factual

basis for compensation; that is, actual damage that the victims of the Fukushima accident have sustained. We summarize the results of interviews and surveys conducted on four common types of victims: mandatory evacuees, voluntary evacuees, farmers, and fishers. Section IV focuses on Fukushima's fishing industry and discusses meanings of damage and reconstruction. Section V provides a general outline of contentious issues that have surfaced in Japan while nuclear accident damage compensation payments proceed. This section draws attention to limitations to relief for victims through compensation as well as difficulties involved in the design of a compensation scheme. Section VI discusses lawsuits that have been filed seeking an injunction on the resumption of operation at various nuclear power plants in Japan. Although these lawsuits have no direct relationship with the issue of compensation, it provides a broader context to the state of nuclear energy in Japan. Lastly, Section VII concludes our chapter by laying out the current conditions of the Fukushima nuclear accident and posing questions for the creation of future regulations and practices.

SECTION I – WHY DISCUSS COMPENSATION?

Satsuki Takahashi

Another nuclear-related accident is bound to occur in the future; we just do not know when and where. It is nevertheless a certainty. One thing we should do in preparation for this unavoidable future crisis is to pool our knowledge together. Sharing, engaging in discussion, and globally disseminating information about past accidents is particularly meaningful. The goal of this chapter prepared by the “Fukushima Team” of the Meridian 180 Global Working Group on Nuclear Energy is to share the information with people within and outside Japan, regarding what we have observed and what we have learned through our respective activities related to this most recent nuclear power plant accident at the Fukushima Daiichi Nuclear Power Plant. More specifically, this introductory section seeks to outline the current state of the nuclear power plant accident aftermath and draw attention to issues from the perspective of damage compensation.

There are several reasons why we chose to focus on damage compensation for this project. Due to the safety myth surrounding nuclear power plants, the costs of nuclear energy are often calculated based only on the costs of their construction and maintenance. If we assumed that nuclear power plant accidents inevitably occur, however, it would be necessary to add in accident-related costs as well. Moreover, when it comes to post-accident

costs, we tend to focus our attention on expenses related to damage compensation. However, we must also consider the existence of damage that cannot be fully taken into account through existing damage compensation schemes. For example, the experiences of voluntary evacuees, in which attorney Yuki Ashina has been involved in, draw attention to the existence of damage, the monetary value of which cannot be easily computed. These include the loss of hometowns, human relationships, and families.

Problems with Fukushima's existing damage compensation scheme are also related to the issue of what counts as "reconstruction." While damage compensation usually provides payments for things lost, it is important to note that, in the case of nuclear power plant accidents, losses continue to be produced for a long period of time. Thus, losses do not only exist in the past when the actual accident occurred but also in the present and future. Now, nearly ten years following the Fukushima nuclear accident, many continue to question whether the responsibility for damage compensation has been adequately fulfilled, whether those people who left towns for evacuation will come back after the lifting of the restriction orders, and when the farming and fishing industry will recover. This disaster is, indeed, still ongoing for the people of Fukushima, and reconstruction continues to be a goal for the distant future. The responsibility for the nuclear accident as well as its costs must thus be understood in the context of such a long-term reconstruction process.

The 2011 Fukushima Daiichi Nuclear Accident provided an opportunity to discuss issues surrounding nuclear energy in regions all over the world. While some countries are attempting to reduce their dependence on nuclear power, there are other countries that are developing new forms of nuclear power generation. Even in Japan, where the accident took place and continues to resonate, the reactivation of nuclear power plants is an argument that divides the country. How should humanity deal with nuclear energy as we turn toward the future? The present international joint project has only just begun its bold attempt to answer such questions, and we believe that this report will put us on the proper path for developing future discussions.

SECTION II — OVERVIEW OF THE DAMAGE COMPENSATION SCHEME FOR THE FUKUSHIMA DAIICHI NUCLEAR POWER PLANT ACCIDENT

Yuki Ashina

Introduction

Since the Fukushima nuclear accident in 2011, a certain level of compensation has been paid to the victims. However, there are some kinds of damage that are not covered by this compensation scheme. The main goal of this section is to introduce the existing damage compensation scheme in Japan. The other goals are: (1) to show what kinds of damage are being addressed in the current compensation scheme; (2) to reveal what kinds of harms are falling between the cracks of this scheme, specifically those regarding different categories of victims; and (3) to visualize the nature of the harms and injuries wrought by the nuclear accident and consider the challenging question of what is necessary for victim relief.

Legal Framework

The following is a set of laws that form the basis for the existing damage compensation scheme. Firstly, because Article 3.1 of the Japanese Act on Compensation for Nuclear Damage (hereafter referred to as the “Nuclear Damage Compensation Act”) stipulates that “in the event of nuclear damage caused by the operation of a nuclear reactor or the like, the nuclear operator involved in the operation of the nuclear reactor or the like bears responsibility for such damage,” the nuclear operator, Tokyo Electric Power Company (TEPCO), is responsible for damage compensation.

However, the total dollar amount of damage compensation exceeds TEPCO's ability to pay—according to TEPCO's official public statement: approximately 9.7 trillion yen, about 92 billion dollars as of February 5, 2021.¹ As a result, the Nuclear Damage Compensation Facilitation Corporation Act was enacted in August 2011 based on Article 16 of the Nuclear Damage Compensation Act that stipulates support by the national government. In September of that year, the Nuclear Damage Compensation Facilitation Corporation (now titled the Nuclear Damage Compensation and Decommissioning Facilitation Corporation) was established, and through it, the Japanese national government has been providing compensation funds.

It is also important to note that this body not only gives financial support to TEPCO but also provides compensation consultation services for victims with the cooperation of a large number of attorneys and notaries public. Over the period from October 2011 to March 2020, a total of 39,239 cases of consultation and information provision (cyclical, permanent-type, etc.) in and outside Fukushima prefecture have been handled.²

Criteria for Compensation

The criteria for the provision of damage compensation by TEPCO primarily relies on the guidelines officially published by the Dispute Reconciliation Committee for Nuclear Damage Compensation (hereafter referred to as the Reconciliation Committee) established under Article 18 of the Nuclear Damage Compensation Act. The Reconciliation Committee has published its official guidelines intermittently since April 2011 and because the core criteria, “Interim Guidelines,” were publicized in August of that year, the series of criteria published by the Reconciliation Committee will be referred to in this section as the “Interim Guidelines, etc.”

The Interim Guidelines, etc. have presented uniform and clear criteria and thereby realized simplified and rapid damage compensation, but these criteria are literally interim guidelines and do not constitute the finalized compensation criteria. For this reason, they feature the following characteristics: (1) the awarding and amount of compensation is linked to whether or not evacuation was ordered in the established zone; (2) monetary amounts are uniform and clear (for example, the amount generally awarded for “psychological damages” is fixed at 100,000 yen, or approximately 968 dollars, per month per person); and (3) as a rule, when the evacuation orders are discontinued, so is compensation. Put another way, the Interim Guidelines, etc. have provided uniform criteria about compensation items and the amount of compensation based on the geographical area in which the victims resided at the time of the accident. Residents living outside of the ordered evacuation zones as a rule are not awarded compensation, and the awarded compensation amounts vary widely even for those living inside the evacuation zones, depending on where the victim lived (i.e., in “difficult-to-return zones,” “restricted residential zones,” or “zones in preparation for the lifting of evacuation orders”). That being said, residents will not receive compensation once a zone's evacuation orders have been lifted.

However, the actual damages cannot be classified or standardized as simply as the Interim Guidelines, etc. dictate. For residents inside difficult-to-return

zones, family composition, occupation, and lifestyle status will differ, as will the damage, loss, and injury they might have received from the accident. At the same time, for residents outside the zones in which evacuation was ordered, there are a considerable number of people who chose to evacuate voluntarily. While these residents would never have evacuated had there not been a nuclear accident, they are nonetheless excluded from nuclear disaster compensation under the Interim Guidelines, etc.

Moreover, TEPCO treats the Interim Guidelines, etc. as though they constitute final compensation criteria, instead of as “interim,” “provisional,” or “temporary,” and does not accept claims for damage not described in the Guidelines. It is obvious that the Interim Guidelines, etc. are not meant to provide criteria for aid for the wide range of individualized circumstances. However, we suggest that at the very least the damages calculated in monetary terms needs to combine “damage compensation receivable under the Interim Guidelines, etc.” and “damage compensation that varies according to the individual” in a tailor-made way for each victim.

The Compensation Application Process

It is likely that victims will employ one of the following three methods in their specific compensation request process: (1) a direct claim made to TEPCO in line with the criteria of the Interim Guidelines, etc., (2) an application to the Nuclear Damage Compensation Dispute Resolution Center, or (3) a lawsuit. Each of these has its own advantages and disadvantages.

Firstly, for (1) a direct claim made to TEPCO, a compensation claim may be submitted by merely filling out the prescribed form, with the advantage of simplified and rapid receipt of payments. On the other hand, as described in the preceding paragraph, the disadvantage here is that one cannot receive compensation beyond the criteria stipulated in the Interim Guidelines, etc. Under the Interim Guidelines, etc. those persons excluded from “victim” status cannot use this method.

Next, (2) the Nuclear Damage Compensation Dispute Resolution Center (hereafter referred to as “the Center”) is an extra-judicial mediation and conciliation authority in charge of dispute resolution, established under the Dispute Reconciliation Committee for Nuclear Compensation. This route is used by victims who are not satisfied with the compensation determined by the direct claim procedure, or by those seeking damage compensation that takes into consideration their specific individual circumstances. At the

Center, several hundred lawyers work as intermediary committee members and investigators. After they accept victim complaints, they review details while listening to opinions from TEPCO. They then present their proposals for amicable settlements to both sides. Since their proposals are not necessarily bound by the Interim Guidelines, etc., it is possible for victims to receive damage compensation in an amount equal to or greater than that which TEPCO would offer. This procedure can thus be significantly advantageous for victims.

However, it gradually became obvious that the Center's overall proficiency in dispute resolution was in decline. The Center does not provide arbitration but mediation and conciliation. In the Center's planning stage, exercising a binding force on TEPCO alone with regard to the settlement proposals proposed by the Center was considered, but because TEPCO repeatedly claimed that it would sincerely accept the Center's settlement proposals, the motion to enforce a one-sided binding force was denied. At the beginning, TEPCO accepted all settlement proposals from the Center. However, since the spring of 2014, TEPCO has refused to accept some settlement proposals, especially regarding mass claims such as Namie residents' claim discussed below. Because of this issue, disputes have not been resolved in a timely manner for many of the victims. As TEPCO started refusing to accept settlement proposals, the Center began proposing settlements with reduced compensation amounts, hoping to avoid TEPCO's refusals. This created disadvantages for some victims, where the compensation amounts they accept from the Center are sometimes less than those from direct claims. From the victims' point of view, it was not made clear, at the application stage, whether they would receive compensation equal to or more than those specified in the Interim Guidelines.

The lawsuit method (3) is the victim's only choice if either methods (1) or (2) of seeking compensation cannot be pursued. As far as we know, as of August 31, 2019, lawsuits are pending in 18 prefectures nationwide, with the total number of plaintiffs exceeding 12,000 individuals.³ For both direct claims and mediation and conciliation through the Center, the receipt of damage compensation ultimately depends on TEPCO's consent. Thus, a significant advantage of a lawsuit is that it does not require a prior mutual agreement between the parties, and the victim can hope for a favorable decision from the court. However, lawsuits can be disadvantageous from the victim's point of view in that the procedure takes a considerable amount of time and there is no guarantee that the victim will be happy with the judgment.⁴

There are many cases in which victims who claim damage compensation are unsatisfied with the results from making only a direct claim (1), and it might seem desirable to apply to the Center (2), or file suit in court (3), but in reality, the majority of victims ultimately make only the direct claim (1).

Issues with Nuclear Damage Compensation Schemes

In the next section, Section III, Suami delves into the details of the issues surrounding nuclear damage compensation schemes, but here I would like to call special attention to two particular issues. First, all victims need a method that leads to compensation, yet there is a lack of awareness around how to connect victims to means of compensation. The Hamadori region along the coastline of Fukushima Prefecture near the damaged nuclear power plant has long been a sparsely populated area, and the number of attorneys is also extremely low compared to urban areas. Thus, in general, there have historically been few opportunities for people in these rural areas to consult an attorney proactively and to attempt resolution on a legal basis. Additionally, in the wake of the nuclear accident, those evacuees—mandatory and voluntary alike—who moved to different prefectures across the nation faced further difficulty in accessing legal experts for their consultation.

As mentioned in the previous section, the damage (and possible levels of compensation) experienced by different individuals varies but strong support from lawyers was still necessary to make specific damage compensation claims. However, for those individual evacuees from rural towns in Fukushima, the general lack of familiarity with legal experts as well as the physical and social distance from their hometowns made it difficult to come up with concrete damage compensation claims. Such an issue was especially apparent among local cities and towns without aggressive leadership in uniting evacuees and gaining compensation. An exception was the town of Namie in Fukushima Prefecture, which spearheaded proactive efforts to address the compensation problem.⁵

Second, there was a fundamental problem in that suffering from the nuclear accident would not be relieved by damage compensation alone. As the next section's three case reports point out in greater detail, the nuclear accident affected things beyond those that can easily be calculated in terms of monetary value, such as one's home or employment. The nuclear accident also destroyed people's hometown, a sense of community, interpersonal relationships, and people's sense of purpose in life, but it is extremely difficult to put a dollar amount on those losses. The reality is that some

kinds of damage deprive victims of things upon which no monetary value can be placed—these kinds of damage cannot be relieved by means of damage compensation alone. Thus, for victims to recover their purpose in life and human dignity, it is crucial that post-disaster reconstruction policies play an essential role. In reality, however, the only means available to set evacuees on the path to reconstruction was monetary damage compensation, and a recovery of victims' humanity has largely been excluded from the agenda for post-disaster reconstruction.

SECTION III – CASE STUDY REPORTS OF NUCLEAR DAMAGE

(1) Mandatory Evacuees: The Case of the Town of Namie

Takao Suami

Damage (Suffering and Damage Sustained by Victims)

According to an interview survey of 9,384 Namie residents, conducted by Waseda University's Legal Assistance Project for Restoration from Great East Japan Earthquake from April to May 2013, the damage suffered by mandatory evacuees is roughly classified as follows:

1. Breakup of the family. There were many three-generation family households in Namie prior to the accident. After the accident, however, in many cases it was impossible to secure a joint residence in the evacuation destination on the same scale as the previous conditions in Namie, so senior citizens had no choice but to live alone.
2. Income reduction/lifestyle difficulties. Reductions were observed among town residents at all income levels.
3. Anxiety and mental anguish. Many residents were exposed to a high level of radiation while evacuating from their town. Therefore, they are frightened of future health effects. Furthermore, not only were the residents forced to move against their will, but it was also unclear when they would be able to return home, and even after returning home, the chances of returning to the same lifestyle as before were low. All of these factors cause considerable anxiety about the future.

Compensation (i.e., Compensation Paid to Victims Suffering Damage)

As mentioned in Section II, the Reconciliation Committee was established based on the Nuclear Damage Compensation Act, in accordance with the Interim Guidelines, etc. It provides compensation payments to mandatory evacuees for property damage (loss of use of land and housing, loss of income from business shutdowns, etc.) and mental suffering (mental anguish accompanying evacuation). These Guidelines were sufficient for managing a large amount of compensation claims in a relatively short period of time, but there was strong criticism concerning both how it was formulated and the appropriateness of the compensation amounts.

Damage That Cannot be Calculated in Terms of Compensation

Compensation claims are based on tort law which allows plaintiffs to recover for civil wrongs. Because of this, some of the damages (for example, for the destruction of communities) cannot be easily calculated. Also, even when they are, the way they are ascertained might not be appropriate, resulting in a portion of damages that cannot be fully comprehended.

Other Issues

The legal principle of damage compensation based on tort law is generally effective for handling individual damage cases such as traffic accidents. However, unlike cases where damage occurs only to a specific individual or a part of society, nuclear damage is spread across a region covering the entire area. For this reason, it is not appropriate to rely solely on damage compensation to individuals as a means to recover from the damage. Damage incurred by individuals must definitely be compensated but compensation payments bring about new problems and suffering. For example, the town of Namie was classified into three zones based on the intensity of the radiation level: namely, zones in preparation for the lifting of evacuation orders, restricted residential zones, and difficult-to-return zones. The property-related/psychological anguish damage compensation criteria vary zone-to-zone.

The extent of contamination from radioactive material is not spread uniformly within each zone but is non-uniform. As such, it is not necessarily the case that all locations within the difficult-to-return zone exhibit higher levels of radiation than do restricted residential zones; subjective and discretionary factors are probably inherent in drawing such zoning lines.

However, if and when a zone is classified as difficult-to-return, the victims in that zone will certainly enjoy higher compensation than do the victims in the restricted residential zone. This demarcation will have the effect of breaking down the local community in Namie and will likely hinder reconstruction from the nuclear accident.

(2) *Voluntary Evacuees*

Yuki Ashina

I will analyze the nature of the damage incurred by “voluntary evacuees” and their compensation. First, “voluntary evacuees” means the people who evacuated based on their own decisions from the areas where the Japanese government did not order evacuations because the total amount of radiation exposure in the area was assumed to be less than 20 millisieverts per year. They are also called “the evacuees from out of the ordered area.” The areas where voluntary evacuees originally lived encompass not only Fukushima Prefecture but also Northern Kanto and Metropolitan areas in Japan. The areas where they evacuated to range all over Japan.

There are many people who evacuated from the originally ordered evacuation areas and then have remained evacuated even after the evacuation orders were lifted, and they can be included in the “voluntary evacuees.” However, I want to focus on the people who evacuated from the areas that were not originally ordered to evacuate. There are no official statistics about the accurate number of these voluntary evacuees because they are not recognized as official evacuees by Japanese government. However, the number was assumed to be about 40,000 in September 2011 according to the website of the Ministry of Education, Culture, Sports, Science and Technology.⁶ It can be assumed there are still many voluntary evacuees even now.

One of the most unique points for voluntary evacuees is that most of them took their infant or school-aged children with them during evacuation. This is because the main reason they decided to evacuate was to avoid low-level radiation exposure that may cause harmful health effects several decades later. It is also characteristic of many voluntary evacuee families that they were composed of only mothers and children because most fathers found it necessary to remain and continue working in order to keep their family income.

Compensation

Though voluntary evacuees were not recognized as needing compensation, the fourth interim guideline (a supplemental guideline of the Interim Guidelines), announced in December 2011, stipulated that they would be paid the money detailed below. The fact that there were some geographic areas outside the mandatory evacuation zone in which the radiation level was actually quite high made this possible. In addition, a conference held to determine the criteria of compensation for the Fukushima accident that included some voluntary evacuees' appeals regarding their disastrous situations also promoted their need for compensation. TEPCO complied and paid compensation as follows:

1. Children under eighteen and pregnant women in specific areas would receive 680,000 yen (about 6,577 dollars) per person for psychological suffering.
2. Adults except pregnant women would receive 80,000 yen (about 773 dollars) for psychological damage and 40,000 yen for incidental expenses, totaling 120,000 yen (about 1161 dollars)

In addition to this compensation, some voluntary evacuees were able to receive extra compensation for evacuation expenses or rental fees for residences to live in during evacuation through using alternative dispute resolution (ADR) held via the Center. However, those who were eligible to receive extra compensation lived in limited specific areas such as Yamagata prefecture and Niigata prefecture where specialized attorneys could support them.

Despite these compensation options, the relief policy for voluntary evacuees is not adequate for several reasons. First, eligible areas were limited to certain, partial areas (Fukushima City, Koriyama City, Soma City, and so on) despite evacuees having moved from various areas. Second, the amount of money they received is much less than what mandatory evacuees received, even though voluntary evacuees also spent huge amounts of money to evacuate (as discussed further later). Lastly, though there was a system to provide all evacuees with money for rent through the local governments based on the Disaster Relief Act, the free rent policy was terminated in March 2017.

Damage of Voluntary Evacuees

Financial Hardship

The distinguishing characteristic of the damage of voluntary evacuees was that most of them had to pay for living expenses in both their original households and their evacuated households, in addition to expenses for transportation, furniture, and daily living that mandatory evacuees also incurred. Unlike mandatory evacuees, however, voluntary evacuees did not receive damages for lost earnings or monthly compensation for psychological suffering caused by evacuation. They could only receive the one-time allowance mentioned above, and thus many voluntary evacuees chose to divide their households to secure their living expenses. In a typical case, one parent remained in Fukushima to continue their job and maintain (to some extent) the family's income and the other parent (in many cases, the mother) evacuated with their children. Many voluntary evacuees subsequently fell into financial hardship.

High Anxiety Over Losing Residences

As the policy of lending rent money was supposed to be reviewed once a year based on the Disaster Relief Act, a number of voluntary evacuees had high anxiety about how long the evacuation would last and when they would be able to return to their residences. According to the 91 free telephone consultations the Kanto Federation of Bar Associations held in July 2016, almost half of the evacuees had concerns about losing their residences.⁷

Concerns about the Destruction of the Community

Voluntary evacuees have two kinds of unique concerns about the collapse of their communities, which are distinct from the concerns shared with mandatory evacuees. Their first unique concern is the conflict between voluntary evacuees and those who chose to stay in their original residences or those who were forced to stay. Some voluntary evacuees feel guilty about their decision to leave their hometown. At the same time, those who could not or did not evacuate tend to blame the voluntary evacuees for causing an overall loss of trust in the safety in their areas. Those who did not evacuate were afraid that the existence of voluntary evacuees spread a negative image that the areas were too risky to continue to live in. The second unique concern is a conflict between voluntary evacuees and the mandatory evacuees. Some mandatory evacuees who have no place to return to, despite their eagerness to return, feel resentment for voluntary evacuees'

decisions not to return, even though they have places to live in. Overall, many voluntary evacuees feel isolated because it is difficult for them to find peers to share their worries with both in their original communities and in the new communities they evacuated to.

Separation of Families

As mentioned before, one of the unique characteristics of voluntary evacuation is that there are many cases of family separation. Some relationships between husbands and wives or between parents and children were destroyed during the long evacuation. Some couples reached the decision to divorce. Above all, these kinds of damage cannot be solved through temporary and limited compensation or through the unstable provision of residences.

The Newly Established Law

The essential concern of voluntary evacuees is that they are not officially treated as “victims” of the nuclear power plant accident. Indeed, they did not evacuate following the orders of the Japanese government. However, it is also certain that they would have never chosen to evacuate had there not been an accident. Therefore, precluding them from the status of “victims” is not consistent with their actual situation. Voluntary evacuees largely decided to evacuate with the motivation of avoiding low-level radiation exposure, a reasonable decision given the uncertainties surrounding low level radiation exposure.

Under these circumstances, the new law, the Act on Promotion of Support Measures for Lives of Disaster Victims to Protect and Support Children and Other Residents Suffering Damage Due to Tokyo Electric Power Company's Nuclear Accident was made in June 2012. This law guarantees the right for each victim to choose between residing in their original location, relocating, or returning (Article 2). It also stipulates that the government shall make the utmost effort to eliminate any health concerns regarding external and internal exposure to radiation (Article 3) and to take responsibility for supporting evacuees in securing housing, finding employment, and providing for children's education. Thus, this new law was expected to give voluntary evacuees rights as victims of the accident.

However, the Basic Framework (Article 5) for policies to make each Article concrete was not decided for more than a year after the law was made. Though the Basic Framework was eventually announced in October 2013, the contents of the Framework were ultimately disappointing to voluntary

evacuees because they limited the areas eligible for support to only 33 municipalities in the central and coastal areas of Fukushima Prefecture. Further, there were few concrete policies to carry out the law.

In summary, there are only weak measures for voluntary evacuees as regards to both compensation and supporting policies so far.

(3) The Case of the Farmers Affiliated with the Fukushima-ken Nominren (Fukushima Prefecture Farmers Group)

Nobuyo Fujinaga

Economic Damage Suffered by Victims

The Fukushima-ken Nominren (Fukushima Prefecture Farmers Group, hereafter “Farmers Group”) includes both those affiliated and those not affiliated with the Japan Agricultural Cooperatives (hereafter referred to as JA). The farmers in this group are working together to realize various demands, including satisfactory damage compensation, which they have successfully secured.

The fundamental stance of the Farmers Group is the following:

1. If victims rely on third party mediators or arbitrators to seek compensation, there is no way for them to assess what damage they have sustained or to know when and how much they will be compensated. The degree of damage varies from one victim to another. When confronting TEPCO, victims are encouraged to first assess the monetary value of the damage they have sustained, become convinced of the validity of their claim, and finally make a decision about their demand.
2. Instead of subsuming their damage under the categories prescribed by TEPCO's claim documentation forms, victims are encouraged to phrase their claims in terms of harm to their dignity as human beings. The victims negotiate their claims individually. Moreover, damage to agricultural products is not simply reputational damage, but is actual damage.

In Fukushima, the number of commercial farms in 2015 shows a notable decrease of 26% compared to the pre-accident year of 2010, and this rate of decrease is much higher than the nationwide loss of 19%. The number of commercial farms, in particular, shrunk by 18,000, and the reduction was

quite remarkable in the Hamadori region evacuation zones. Aging of the population has progressed, and the use and maintenance of farm lots are reaching their limits. The output of agricultural products in 2013 was 165.6 million yen, or approximately 1.7 million dollars, which had stagnated at approximately 80% of the 2009 pre-accident level. Other impacts on the market are found in a fear of “Fukushima-grown products,” and consequent price reductions.

Issues with the Reconstruction Policies of the Government: Effects of Decontamination Policies and Compensation

Rice Paddies

In 2011, the year of the accident, the radiation level of a harvest of unmilled rice exceeded 500 bq(becquerel)/kg, the radiation cutoff criterion at the time, and its shipment was suspended. Since 2011, measures to control cesium absorption have been implemented using zeolite and potassium spraying onto the fields. Every bag processed for shipment is inspected, and any unmilled rice that exceeds 100 bq/kg of radiation is not distributed for sale.

Orchards

In the winter of 2012, the trunks and branches of peach, apple, persimmon, and grape vines/trees were high-pressure washed to decontaminate them. The bark of pear trees was also scraped for decontamination. From 2014, measures to strip away the topsoil from groves, orchards, fields, etc. and transfer it to a corner of the farmland for decontamination have been carried out for the farmers who wished for it. As a consequence, radiation levels did fall, but there was no compensation for declines in crop yields due to the stripping of the all-important topsoil or its effect on the fruit trees.

Pastures

Radiation control measures combined the spraying and sprinkling of potassium as an absorbent with other methods such as the stripping of the topsoil, tilling using a plow, and deep plowing. Starting in 2015, cattle were allowed to graze once radiation analyses of the grass in the pastures showed lower than standard values. However, there are still concerns about cesium intake. For that reason, dairy farmers feed their animals not only grass from their land, but also purchased feed. There is no compensation for this purchased livestock feed, which is an increased burden on the farmers. Zeolite and potassium for decontamination is distributed through local

government channels and agricultural cooperatives, and these expenditures are covered by the compensation funds.

Damage Compensation (Funds Paid for Damage Suffered by Victims)

If there is a clear causal relationship with the nuclear disaster, any difference in the sales volume or unit price of a produce from pre-accident standard figures is compensated. However, TEPCO sometimes arbitrarily demands additional documentation beyond what was required immediately after the accident, or changes the method of calculation of compensation. In the past, TEPCO took into account the natural increase in agricultural yield over time (such as the increased output of fruit as the trees age), but it has changed its procedures and now refuses to take this into account. As a result, farmers in Fukushima have less motivation to increase their production scale. In many of these cases in which the unit price of a produce has not dropped and yet the sale volume has dropped, no compensation is paid.

Following the accident, dairy farmers were not able to use grass from their land because of the radioactive contamination and had no choice but to quickly switch to purchased feed. In the aftermath of the disaster, dairy cows began to die regularly after giving birth. There was a farm in which six head of cattle died within six months. Because TEPCO did not recognize any causal relationship to the accident, however, no compensation was paid. A claim for compensation for the decline in milk shipment was also lodged against TEPCO but no payments were made because TEPCO did not recognize the causal relationship between the death of cows and the nuclear accident.

Necessary additional expenses due to radiation testing and the accident are also being compensated. For example, inspection of agricultural products is naturally compensated as an additional cost, but expenditures for soil analysis are no longer compensated. The radiation level of much of the land in Fukushima Prefecture's Hamadori and Nakadori regions exceeds 40,000 bq/m². This figure shows that these regions technically qualify as radiation-controlled areas. Some farmers asked the Ministry of the Environment, the Ministry of Health, Labor, and Welfare, and the Ministry of Agriculture, Forestry, and Fisheries if the ministries saw any issues with farming in these areas. For over two years they received no straightforward replies, with some responses along the lines of "since you are a self-employed person, there are no departments that can address your concerns." Yet for laborers working in farming corporations, employers are required to carry out

control measures such as radiation dose control and health diagnoses. There is a problematic contradiction in these policies.

Damage That Cannot be Calculated in Terms of Compensation

Following the nuclear accident, newly introduced criteria emerged mandating that no infringement of rights be recognized in areas where the radiation measures 20 mSv/year or less. These are government-mandated guidelines and they have in effect treated Fukushima as separate from the rest of Japan. Outside Fukushima Prefecture, the general public's annual dose limit is 1 mSv, the same as before the accident. The 20 mSv amount is considered as an emergency dose limit and serves as grounds for pain and suffering, grounds for evacuation, and grounds for compensation. The revocation of the criterion of 20 mSv is important for the reconstruction of Fukushima.

In the Farmers Group, the radiation level in becquerels (Bq) of the members' farmlands is measured and is shared with the members wherever it is possible. The Ministry of Agriculture, Forestry, and Fisheries measures the air radiation rate (in Sievert) via aerial monitoring (2 km in all directions). However, farmers work the land itself, touching the soil and sometimes even inhaling its dust—radiation exposure is often particularly high in orchards since no tillage is done. The Farmers Group has been requesting that, rather than the air radiation rate, the land radiation level in becquerels should be used to measure radiation and inform the public. The circumstances force Fukushima farmers to labor in this affected area, and they are left with no choice but to risk exposure. They are demanding 30,000 yen per decare as compensation for their continued farm work in contaminated farmlands in the affected areas, but this has not come to fruition.

Responsibility (People and Groups Shouldering the Burden of Responsibility for Compensation Payments)

Fukushima-grown produce is sold at a low price because of the nuclear accident and the radioactive substances released by it, not because of misinformation consumers may have about risks associated with the produce from Fukushima. Most radioactive substances in harvested agricultural products are below the reference value or under test detection limits, but the farmlands are still contaminated with radioactive substances. Reducing such damage to reputational damage in a situation in which there is no prospect of controlling the nuclear accident fallout or decommissioning the nuclear reactor itself is nothing but transferring

responsibility to consumers. It should not be forgotten that the responsibility for the damage lies with TEPCO, which caused the accident, and the government that promoted nuclear power in the first place.

The Future Oriented Uses of Farmland: Toward Renewable Energy Enterprise

2012 saw the start of the renewable energy buyout guarantee scheme (Feed-In Tariff). Farmers are attempting to move away from nuclear power by generating energy they need themselves. To stabilize farm management, farms are being encouraged to install solar panels. Regional energy sources for local city residents and farmers are now indispensable for the sake of energy independence, intra-regional circulation of money, and the maintenance and development of local communities. Citizen-funded power plants have been built in Ryozenmachi in Date City with a maximum output of 50 kilowatts, and in Atami-cho in Koriyama City with a maximum output of 210 kilowatts. Further, corporations that generate power are being launched in various localities, promoting solar power generation. These initiatives make use of idle land owned by Farmers Group members. The planned total output is six megawatts. There are also plans to set up a power plant using methane gas generated through anaerobic fermentation of food residue, organic sludge, livestock manure, and energy crops.

	Units	Fukushima Prefecture	Fukushima Prefecture	Fukushima Prefecture	Fukushima Prefecture	Nationwide
		2015 A	2010 B	Change C (A-B)	Rate of Change (%) (C/B)	Rate of Change (%)
Agriculture & Forestry	# of Businesses	53,623	72,604	18,981	26.1	18.7
— Agriculture	# of Businesses	53,157	71,654	18,497	25.8	18
—Forestry	# of Businesses	2,721	4,929	2,208	44.8	37.7
Arable Land	Hectares (ha)	100,279	121,488	21,209	17.5	5
—Rice Paddies	Hectares (ha)	77,283	90,572	13,289	14.7	4.8
—Fields	Hectares (ha)	17,921	25,057	7,136	28.5	4.1

	Units	Fukushima Prefecture	Fukushima Prefecture	Fukushima Prefecture	Fukushima Prefecture	Nationwide
—Lumber/ Forestry	Hectares (ha)	5,076	5,859	783	13.4	11.8
Abandoned Fields/ Paddies	Hectares (ha)	25,226	22,394	2,832	12.6	6.8
Professional Farmers	Households	52,270	70,520	18,250	25.9	18.5
—Full-time Farmers	Households	12,078	13,004	926	7.1	1.9
—Part-time Farmers	Households	40,192	57,516	17,324	30.1	24.8

Agriculture output calculated (Unit: 100,000,000 yen)

	2009	2013
Rice	928	754
Vegetables	546	469
Fruits	272	245
Cows raised for meat	137	108
Raw milk	97	80

SECTION IV – NUCLEAR DAMAGE COMPENSATION AND RECONSTRUCTION OF FUKUSHIMA FISHING: THE CASE OF SOMA CITY

Satsuki Takahashi

Introduction

The Fukushima Daiichi Nuclear Power Plant accident had a tremendous impact on coastal fishermen who make a living from the ocean. Fishing operations have been suspended in the coastal waters of Fukushima since the accident, and despite conducting trial runs, the situation is not looking brighter for a resumption of operations. The purpose of this section is to examine the actual condition of the damage that cannot be captured simply

by looking at damage compensation, as well as the gap between damage compensation and the reconstruction of the fishing industry, based on interview surveys conducted among coastal fishermen from Soma City, Fukushima Prefecture in 2014.

The Case of Soma City, Fukushima Prefecture

Many of the families working in the coastal fisheries in Soma City, Fukushima Prefecture lived in districts near the coastline. Thus, most lost their homes in the giant tsunami of 2011, and many people lost their families. Mr. Akasaka was a coastal fisherman in his fifties and one of those living in this coastal region.⁸ Luckily, his family evacuated to high ground after the earthquake, so everyone was safe from the tsunami—but his home, which he was so fond of, was swept away, leaving only the foundation. Starting immediately after the tsunami and for the next two months, Mr. Akasaka and his family lived as evacuees, relocating to temporary housing. At the time of the interview in 2014, he was still living in the same place with his wife. Plans were underway for a group transfer to higher elevation for those who lived in districts near the coast, and within three years their new home would be finished. While Mr. Akasaka was happy that prospects were looking up for the reconstruction of his family home, he did not hold the same optimism for the prospects of the fishing industry, so he had deep anxiety about the future.

In 2011, on the afternoon of the earthquake, after they took in the last catch of the day, Mr. Akasaka and his wife were resting at home. Right when the large quake had settled down, Mr. Akasaka's wife headed toward the designated evacuation site on high ground and Mr. Akasaka returned to the harbor to take the boat offshore. When a large earthquake occurs, generations of fishermen in this region have a practice of taking their boats out to the open sea before the tsunami makes landfall. This was customary to protect the boat, which is the fisherman's indispensable possession, and many of the fishing boats, including Mr. Akasaka's, remained unscathed.

Risking his life in this way protected the fishing boat. However, since the ban on fishing continues to this day due to the radioactive contamination from the Fukushima accident, most boats have spent their time since the earthquake moored in the harbor. At the time of this report nine years have passed since the earthquake and the result of regular monitoring tests has shown a downward trend on the measured dosages of radioactive substances detected from the bodies of fish and other seafood. Starting June 2012, continuous trial operations have been conducted targeting fish

species in which radioactive substances are continuously not detected, and assessment surveys at shipment destinations of Fukushima Prefecture-caught seafood are being conducted. Furthermore, the number of species of marine life targeted by the trial operations has increased dramatically from the initial three species. According to the Fukushima Prefectural Federation of Fisheries Cooperative Associations, as of February 20, 2020, 228 species of marine life tested safe for consumption.⁹ However, consumer evaluations of Fukushima-caught seafood are still severe. Even when it has been established by monitoring results that there is no radiation effect, one can predict that it will be many years before consumer anxiety about Fukushima-caught seafood will ease up.

For the nearly 10 years since the earthquake, the coastal region's fishermen have spent their time mostly on activities other than fishing. Although they received compensation for the tsunami and nuclear accident-related damage, these funds have been exhausted by the rebuilding of homes, repurchasing of fishing gear, and the maintenance of the fishing boats saved by putting them offshore, etc. Because of this, many fishermen are working at reconstruction-related sites as day laborers. Some of these individuals have expressed concerns about their identities as fishermen. Hardly any have been on a boat in the long years since the earthquake, and as they work at construction sites without knowing when they can get back to fishing again, days of frustration are spent wondering if they will be able to return to their true calling. If the nuclear accident had not happened, the rebuilding of the fishing industry would have occurred much more rapidly. However, the discharge of contaminated water into the ocean continues even today in Fukushima, and the concerns about the future held by these fishermen who have lived in harmony with the sea are indeed great.

For Mr. Akasaka, who has been unable to return to his true calling as a fisherman, finding himself powerless was like a battle with himself. Ever since May 2011, when he started living in the temporary housing, he has been working on construction sites. As he patted his tanned cheeks, Mr. Akasaka said, "Only my skin color is the same as when I was fishing, lightly darkened by the sun," as a self-deprecating smile rose to his face. "However, before when I was working as a fisherman on the ocean, the condition of my body was completely different. Even though I am a fisherman, I am wearing the temporary mask of a construction worker. I wonder if the day will ever come when I can get back to fishing? I might not be able to end my days as a fisherman," he said sadly. At the time of the interview-based survey, in the summer of 2014, Mr. Akasaka had not stepped onto a fishing boat even once since the earthquake. Trial runs have begun on several types of marine life

and he had friends who were able to go fishing once or twice a month. But because flounder, Mr. Akasaka's specialty, had not been entered into the list of species targeted in the trial operation, he has not even been able to do the trial runs. The struggle related to identity described above is not well reflected in the support proffered by compensation funds.

While the fishermen do anticipate the eventual reopening of fishing waters, the future that follows these operations nevertheless is clouded in uncertainty. Because TEPCO wishes to end its responsibility for compensation soon, it wants these operations to start as early as possible. The fishermen themselves are hoping for the fishing industry to restart. At the same time, however, consumer anxieties about Fukushima-caught seafood are such that even if these operations start up again, there is no guarantee that the fish will sell, and deep anxieties remain about whether fishing operations are economically viable. If it turns out that the market price for fish when fishing operations open in the future is far lower than that before the earthquake, the fishermen will have to make a claim to TEPCO based on damage caused by false rumors and misinformation, but in the end exactly how much TEPCO will consent to pay out is very much up in the air.

Damage Compensation in the Coastal Fishing Industry

Following the nuclear accident, high concentrations of radioactive substances were detected in marine life whose habitat was the surrounding coastal waters and, starting immediately after the accident, fishing operations were suspended in all Fukushima Prefecture waters. Trial operations are being done at present, though actual fishing operations are not yet set. For this reason, damage compensation is being paid by TEPCO for damage caused by the suspension of operation. The operational suspension status continues, and compensation payments are also continuing.

In general, when a disaster affects the coastal fishing industry in Japan, overall negotiations for damage compensation are handled by a prefectural federation of fishing cooperatives (hereafter referred to as fish coops). In the case of the Fukushima nuclear disaster, Fukushima and neighboring prefectural federations of fishing coops took the initiative and hired attorneys to conduct compensation negotiations. However, individual coop members, namely coastal fishermen, are required to have detailed catch records for the last five years in order to claim their own economic losses caused by the nuclear accident and receive actual compensation. The rough

calculation of compensation is made as follows. First, the years with the highest and lowest hauls are taken out from the past five years' catch records, and the remaining three years' average amount of haul is calculated. This then dictates the amount of damage compensation owed due to the suspension of fishery operation, and TEPCO will be requested to pay this amount.

In this way, when one looks only at the conditions of compensation for the economic damage accompanying the suspension of operations, one may be forgiven for thinking that the fishermen are receiving appropriate compensation. However, as many fishermen told me in their interviews, they have lost more than compensation can cover. The loss of the victim's identity as a fisherman, and the unending anxiety regarding the re-birth of the fishing industry mentioned by Mr. Akasaka are not generally categorized as damage to be compensated. We should take clear note of the fact that the opportunity to catch fish was not the only thing that was taken away from fishermen by the nuclear accident.

Reconstruction of the Fishing Industry

As was the case with the Fukushima nuclear accident, and many other anthropogenic disasters, "responsibility" for reconstruction is often interpreted as "compensation responsibility." However, this blurs the lines of responsibility for damage that does not fit into the compensation schemes currently in play, and distorts the meaning of reconstruction. Reconstruction of the fishing industry is not finished once trial operations have segued into real operations, in the same way that lifting the evacuation orders does not automatically mean reconstruction is complete for an area. Also, the responsibility that should be borne for evacuees and fishermen by TEPCO, who caused the accident, and the state government that actively promoted policies of nuclear power, does not disappear simply because regular fishing operations resume and evacuation orders are lifted. Isn't their guaranteed responsibility not just for damage compensation, but also for reconstruction?

What is reconstruction, then? When I posed this question to Mr. Akasaka in the summer of 2014, he answered, "I can't even imagine reconstruction right now." As Mr. Akasaka put it, "If the prospect of actual fishing operations is no good, then nothing will get off the ground at all. If the prospects for actual fishing operations are good, then maybe we can start to think about reconstruction." In other words, reconstruction to him means a process that can begin only after a return to regular fishing operations. Just

as we can see from looking at past case studies of nuclear weapons testing in the Marshall Islands and the Chernobyl nuclear accident, the time necessary to recover from radioactive contamination is quite long. With reconstruction comes many difficult things. In spite of that fact, accident responsibility is often understood as compensation responsibility—and we wonder why those who are responsible are trying to relinquish their responsibility in less time than the period actually needed for reconstruction.

Many people involved with reconstruction policy will tell you that reconstruction is not a return to the state before the earthquake. If that is true, shouldn't responsibility for the nuclear accident be regarded in the same way? For that which was taken from victims, merely going back in time to provide compensation does not count as fulfilling responsibility. Responsibility is not just about the past; it should also be about the present and the future.

SECTION V – ISSUES WITH THE COMPENSATION SCHEME FOR NUCLEAR ACCIDENT VICTIMS FROM DISCUSSIONS IN JAPAN AFTER THE FUKUSHIMA ACCIDENT

Takao Suami

Introduction

Following the Fukushima Daiichi Nuclear Plant Accident, compensation was given to all those who suffered injury and damage due to the accident. First and foremost, this included the many residents who had no choice but to undergo mandatory evacuation, and also a large number of individuals and businesspeople. In this section, we give an overview of the kind of issues that were discussed in Japan after the accident of March 2011 with regard to compensation to the victims with the aim of obtaining suggestions for our quest for an appropriate compensation system.

Disaster Reconstruction and Compensation for Damage

The Limits of Damage Relief by Compensation

In Japan, almost ten years have passed since the accident, so the limits and insufficiency of victim aid through the damage compensation system are starting to be recognized. As of February 5, 2021, TEPCO secured governmental support, and approximately 9.7 trillion yen (approximately 92 billion dollars) had already been paid to a large number of victims as compensation.¹⁰ However, in actuality, there is a considerable portion of compensation payments that are not directly linked to life recovery/regional reconstruction, and the appropriateness of victim aid that centers around damage compensation is being called into question.

The Harm Inherent in Damage Compensation

Of course, the principle of “full compensation for damage” must be observed. This is because the victim has the right to make a claim to the injurer for compensation. However, the full costs of potential compensation are not accounted for in calculations of the cost of nuclear power generation, which leads discussions of nuclear policy astray. However, it is notable that compensation payments have created the following divisions among victims of the earthquake and the Fukushima accident because of the applied criteria for compensation: a) the division between earthquake/tsunami victims and nuclear accident victims; b) the division between mandatory and voluntary evacuees; and c) the classification of residence among mandatory evacuees (zones in preparation for the lifting of the evacuation orders, restricted residential zones, and difficult-to-return zones). The presence or absence of legal effects are decided upon depending on whether or not certain requirements are fulfilled. This is an essential attribute of contemporary law and is usually understood as a proper phenomenon. However, especially under the circumstances of a mandatory evacuation which damages the local community on all fronts, the current compensation system has the effect of anchoring such damage and making it more severe.

Compensation Payments and Reconstruction of Livelihoods

In addition, although compensation payments are substantial for mandatory evacuees, they do not always contribute directly to the reconstruction of their livelihoods. The intent of the damage compensation system is for the victims to be able to start a new life by receiving

compensation for the damage they have sustained, thus restoring their lives to the pre-disaster state. For the victims of the Fukushima accident, however, the compensation may be enough for their day-to-day living but it is not enough to overcome the obstacles to reconstructing their new lives. As a result, many of the victims are still without a clear plan for rebuilding their lives. For example, fishermen are unable to resume their normal operations due to radioactive contamination of the ocean from the nuclear accident. The circumstances surrounding the farmers have not improved either, as consumers are avoiding the purchase of agricultural produce from Fukushima out of concern for the radioactively contaminated soil, and the sales prices of products from Fukushima have dwindled. Furthermore, elders who were forced to leave their hometowns are having difficulties adjusting to their new environments, which leaves them isolated. Children who had to move to another prefecture are often bullied at their new schools. Although the fact that the compensation for damage does not necessarily result in the rebuilding of livelihoods is an inherent limitation in tort law for damage compensation, this limitation is even more real and prominent in the case of nuclear disasters in which the foundations of local communities and local industries have been wholly destroyed and swept away.

Emergence of New Damage Associated with the Victims Returning Home

It is natural to assume that the compensation process would approach its end as compensation is paid out to the victims. The evacuation orders in some of the forced evacuation areas have been lifted and some of the residents have already returned. However, it has been reported that some business owners ran into financial difficulties after they returned home and resumed their businesses, representing just one of the obstacles facing evacuees in reconstructing their local communities. In these cases, TEPCO is likely to claim that the compensation has already been completed and that there is no causation between these difficulties and the nuclear accident, but in reality, the causation cannot be categorically denied. By March 2017, most evacuation orders were lifted, except for the “difficult-to-return zones” in which evacuees are unable to return for the foreseeable future due to high-dose radiation. In light of this, claims for damage compensation are likely to continue for the near future. In 2013, the Ministry of Economy, Trade, and Industry (METI) estimated the total amount of compensation at 5.4 trillion yen, but close to 6.5 trillion yen had already been paid by 2016, far exceeding the initial estimate. According to the new estimate in December 2016,

therefore, the total amount of compensation would balloon to 8 trillion yen. Even then, it was still unclear as to whether or not this amount would fully cover the compensation. As mentioned before, more than 9.7 trillion yen has been paid up to now. In essence, with the circumstances still in flux, what was formerly potential damage is revealing itself to be actual damage, and therefore it is not clear when the compensation payments will be completed.

Limitations of the “Compensation for Damage” Framework

In general, for a disaster such as a nuclear accident in which the entire region is affected, a system of paying compensation only to individual victims is simply inadequate. This is because the sum of the damage sustained by each individual victim still does not reflect the various kinds of damage that were sustained by the community as a whole. In addition to reconsidering how the damage compensation system is structured, it is necessary to consider a separate system that could complement the compensation system.

Discussions in Japan after the Fukushima Accident

In this part, I will outline the issues that have been debated in Japan since the Fukushima accident and provide concise explanations of them.

Compensation for Damage vs. Compensation for Loss

In the case of the Fukushima accident, since the efforts to provide relief to the victims have been made in accordance with the Nuclear Damage Compensation Act, it is irrefutable that payments made so far to the victims have been compensation for damage. The argument could be made that this is a case of “eminent domain” (Article 29-3 of the Japanese constitution) in which the state must compensate private parties for the use or loss of their land for public use, particularly in the case of the mandatory evacuees. This is because residents were forced to evacuate based on the evacuation order zones that were established by the government. As to damage compensation, Japanese law adopts the principle of “actual loss compensation” (resulting in the denial of punitive damages) and it is therefore difficult to be compensated for more than the objective value of the assets. On the other hand, some take the view that compensation for losses should take survival security and livelihood protection into consideration, which can potentially allow for a more flexible calculation of the amount of payment than that of compensation for damage. Having said that, in the case of the nuclear disaster in Fukushima, although the

compensation is for damage, payments in amounts exceeding the objective damage have been approved. For example, because the prices of real estate are generally higher in areas where the evacuees are resettling compared to the prices in the evacuated zones, the amounts are determined by considering the additional cost that would be required for securing new real estate property. This fact in itself suggests that the existing compensation system based on the principle of “actual loss compensation” is adequate.

Structure of the Damage Compensation System

The major issues that have been debated regarding the damage compensation system are as follows:

Scope of Victims

It is natural that mandatory evacuees are considered victims of the Fukushima accident, but when it comes to the voluntary evacuees, i.e., those who evacuated from areas for which an evacuation order was not issued, the damage they have sustained and their connection to the Fukushima accident is a point of contention. This is because their decisions to evacuate were voluntary in one sense, even if in reality they had no alternative but to evacuate. For this reason, the amount of damage compensation that has been paid to voluntary evacuees is significantly lower than that paid to mandatory evacuees, and the scope of voluntary evacuees who are eligible for compensation is limited to those who were residents of Fukushima at the time of the accident. This means that the status of voluntary evacuees as victims is not fully recognized.

Victims are not limited to those who were forced to evacuate. Many business owners, both from within and outside the evacuated zones, have experienced financial damage from business interruption and reduced sales after resuming their businesses. Determining which business owners qualify as victims is particularly problematic when the damage is reputational damage (e.g., damage from harmful rumors or misinformation, described further below).

Each local government in the evacuated zones is also a victim on its own, independent of its residents. This is because not only has it been forced to cover various expenses for the Fukushima accident but because municipal properties have also been damaged. Having said that, these local governments have received financial support from the central government. The issue to be discussed is with regard to how this financial support should be evaluated in relation to the damage.

Scope of Damage and Calculation of the Amount of Compensation

According to Japanese law, damage that is related to the Fukushima accident is eligible for compensation, which include economic damage (property, income) and psychological damage (consolation). For the former, “reputational damage” became a point of contention. Reputational damage was recognized in precedents, but a wide range of reputational damage that would have been considered far out of the scope of conventional criteria has been included for compensation, such as the lower prices of agricultural and fishery products across Japan (i.e., not just in Fukushima). For example, based on the supplement to the Interim Guidelines, mushrooms that were produced 800 km away in Hiroshima are also considered to have sustained reputation damage.

As for the latter, determination of the “base amount for psychological damage” for the mandatory evacuees was debated in particular. Starting with the sudden evacuation order, mandatory evacuees had to endure poor living conditions for a long time. The residents of difficult-to-return zones do not even know when they will be able to go home, which means that they have practically lost their hometowns for good. For residents of zones prepared for evacuation orders to be lifted and in restricted residence areas, even if they are able to return, their hometowns are far from what they remember. It is likely that very few will actually decide to return out of concern for low-dose exposure and deteriorated living infrastructures. Although there is no doubt that these circumstances are causing a great deal of extreme psychological pain, it is not easy to assess them in terms of monetary amount. In the case of the Fukushima accident, the base compensation amount for psychological damage was set to 100,000 yen (about 968 dollars) per month by the Reconciliation Committee—an amount that received strong criticism from victims. First of all, the compensation criteria were set based on inadequate investigation. For psychological damage in which an objective justification of the calculated amount is difficult, a thorough survey of the actual conditions through victim-oriented interviews and the like would have lent credibility to the criteria. In other words, the opinions of the legal experts in the Committee alone are unable to substantiate the criteria.

Secondly, the rationale behind the compensation criteria is also important to convince victims. The Reconciliation Committee explained that it decided on the compensation criteria based on the criteria for victims of traffic accidents. This explanation was not well-received by the victims. The psychological damage due to mandatory evacuation (e.g., separation of

family members, reduced income, difficulties and anxiety of living as evacuees), anxiety, and suffering (including the fear of radiation exposure and uncertainty of the future) are completely different from those caused by traffic accidents. Therefore, it is not possible to simply adapt the traffic accident criteria to the situation of nuclear disaster.

Third, the appropriateness of the compensation criteria themselves is questionable. All of the lawsuits that were filed by victims across Japan have demanded much higher compensation, suggesting that many victims are not satisfied with the amounts that were set by the Committee. However, for psychological damage, the first and second points reflect the appropriateness of the monetary amount.

Subject of Liability

In Japan, only the nuclear operators (mainly electric power companies) are subject to liability in accordance with the Nuclear Damage Compensation Act, and they bear liability without fault. However, two issues have been debated since immediately after the accident. The first is whether or not the government, in addition to the nuclear operators, should be held liable. Many of the lawsuits that have been filed by the victims pursue not only the liability of TEPCO but also that of the government, because for all intents and purposes, nuclear power generation has been promoted as a government policy. The second issue, in relation to the first, is whether the liability of the nuclear operators is unlimited or limited. If the nuclear operators become bankrupt, their unlimited liability becomes virtually meaningless, and if we consider the fact that nuclear generation has always been a national policy, it can be argued that the liability borne by the nuclear operators should be limited and that the government should also be subject to liability. However, the idea of turning the nuclear operators' liability from unlimited to limited has met strong opposition from the Japanese citizens as they believe it will lessen the safety consciousness of the nuclear operators and cause a moral hazard. Ultimately, the Parliament decided to maintain that the nuclear operators continue to bear unlimited liability.

Dispute Settlement Understanding

With regard to the procedure for the victims to pursue TEPCO's liability, the following two points have been argued. Firstly, the current Japanese proceedings for civil actions lack a system that can unify the demands made by multiple victims for damage compensations caused by unlawful acts, as happens in class action lawsuits in the US. This flaw is particularly serious

when there are many cases in which a large number of victims have sustained damage of relatively small amounts. After the Fukushima accident, the Center, which is an alternative dispute resolution (ADR) body, was established under the Reconciliation Committee to resolve disputes concerning compensations between the victims and TEPCO. In the case of the town of Namie, the local government made a claim to the Center to increase the amount of compensation for psychological damage by acting as a representative for over 15,000 town residents. Such a collective claim is a practical measure against the aforementioned flaw in the system.

Secondly, the ADR procedures are not always effective in resolving disputes.¹¹ As mentioned before, the Center only provides services for mediation and conciliation. As a result, dispute settlement depends upon TEPCO's consent.

Conclusion: A Desirable Compensation Scheme

We believe that the main objective of the compensation scheme as it applies to victims of nuclear accidents must be a recovery from the damage sustained by the victims. However, what the victims truly desire is restitution to the pre-accident state, and damage compensation is the last resort when other alternative measures have been insufficient to achieve such restitution. Reconstruction from the nuclear accident needs to involve recovery, in one form or another, of the victims' local communities, which have been completely devastated. However, the current damage compensation system in Japan does not independently recognize the destruction of communities as damage. Although it is unclear as to whether or not such damage should be covered by damage compensation, the fact remains that a compensation system that is exclusively focused on the individual victims cannot reconstruct the local communities that have been destroyed as a whole, and therefore the lives of the victims that were built on the relationships with other people within the communities cannot be reconstructed either.

In addition to recognizing that individual victims have sustained their own damage within the general context in which local communities have been entirely destroyed, we believe that the experience of the Fukushima accident suggests that a compensation scheme that can contribute to the victims' prospective lives is also needed.

SECTION VI — THE SIGNIFICANCE OF THE “INJUNCTION LAWSUIT” FILED BY RESIDENTS TO PREVENT NUCLEAR DISASTERS

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On March 9, 2016, the Otsu District Court made a provisional injunction to order a “suspension in operation of the Takahama Nuclear Power Plant's No. 3 and 4 nuclear reactors.”¹³ This ruling put an end to a 5-year-long court action that was started in August 2011 by the residents of Shiga Prefecture who refused to become the victims of severe nuclear damage. This ruling came along when nuclear power plants across Japan were resuming operation as exemplified by both the approval to resume operation of the Sendai Nuclear Power Plant in Kagoshima Prefecture and the Fukui District Court's decision to overturn the original ruling to suspend the operation of the Takahama Nuclear Power Plant. Thus, this ruling was extremely significant as it put a stop to the trend of resuming the operation of nuclear power plants by suspending one that was in operation. It was also a major victory in a sense that it honored the personal rights of the residents who wanted to suspend nuclear operations even if it meant going to court, and there are no words to describe the joy it has brought. Since then, a stay of execution complaint by the Kansai Electric Power Company (KEPCO), the defendant, was denied on June 17 and KEPCO's objection was denied on July 12. The lawsuits have now reached the Osaka High Court, where court deliberation has started.¹⁴

The aforementioned lawsuit was filed by the residents based on their anger towards the ongoing trend of resuming the operation of nuclear power plants when as many as 100,000 people are still unable to return home, and the cause and resolution of the Fukushima accident remain unclear. In this context, the residents were concerned about a serious risk of accident at the Takahama Nuclear Power Plant's No. 3 and 4 reactors and the gravity of the associated damage. On April 16 and 17, 2016, an epicentral earthquake caused by an active fault occurred in the Kumamoto region, causing extensive damage. Since then, Mt. Aso has erupted and a fault-type epicentral earthquake caused significant damage in Tottori Prefecture, affecting a wide area with seismic intensity of 4 according to the Japan Meteorological Agency (JMA) Seismic Intensity Scale along the entire Median Tectonic Line. Seismic activity measured at an intensity of grade 3 to 4 was also felt in Osaka. The area of Tsuruga in Fukui Prefecture is known for a string of nuclear power plants concentrated in the area as it is home to 14

nuclear reactors KEPCO operates, and it sits directly above a cluster of active faults known as the Kinki Triangle, of which the Median Tectonic Line forms the base. An accident at the Takahama and Ōi Nuclear Power Plants would contaminate Lake Biwa, which serves as the water source for 14 million residents in the Kinki area who live within a 30 km radius, and the magnitude of such damage would be unimaginable.

The defense counsel summarized the reasons for the suspension ruling as follows. The plant's severe accident measures are inadequate. 700 Gal as the design basis earthquake ground motion is inadequate.¹⁵ There is also a risk of a major tsunami. The used fuel pit is not sufficiently safe from such a tsunami. There are no effective evacuation plans, either. Based on these, the defense counsel (1) explicitly placed the burden of proof on KEPCO; (2) clearly pointed out the irrationality of the new regulatory standards; and (3) argued that the approval of nuclear power plants should be a community decision, not an expert decision.

In addition, 1107 residents in the Kansai area filed a lawsuit to suspend the operation of the Ōi Nuclear Power Plant's No. 1 to 4 nuclear reactors on November 29, 2011. Preparation is underway for additional lawsuits with the aim to have up to 10,000 plaintiffs for the second through fifth campaigns.

SECTION VII – WHAT THE FUKUSHIMA DAIICHI NUCLEAR ACCIDENT ROBBED: EXPLORING THE LIMITATIONS AND POTENTIALS OF THE COMPENSATION SYSTEM

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Introduction

Meridian 180 has discussed many critical issues in the past. Who is classified as a victim? What counts as damage? What happens when compensation does not permit for an adequate recovery of a person or community? Who is responsible for compensation? What is considered as disaster reconstruction? This section represents our answers to these questions that were obtained through repeated discussions based on experience from the

Fukushima accident. It is our hope that this section will stimulate a conversation about our preparedness for the nuclear accidents that will probably occur again somewhere in the world.

Compensation Issues in the Context of Victims' Relief

The objective of victims' relief is to help victims to recover from the serious damage inflicted by the Fukushima accident, to rebuild their lives, and to regain the peaceful daily lives they had before the accident. This objective itself is thought to be widely shared in Japan, and victims' relief of the Fukushima accident has primarily revolved around compensation payments for nuclear damage. The total amount of compensation paid as of February 2021 to individuals and corporations amounts to approximately 9.7 trillion yen. In order to complete the payment process for such a large amount of compensation, TEPCO assigned about 5,040 staff (as of July 1, 2017) to the Fukushima Nuclear Power Compensation Consultation Room in their Fukushima Headquarters, to handle the payments.¹⁶ Payment of compensation is still ongoing as of this writing.¹⁷ However, latent harms continue to surface as situations change, making it impossible to predict when the payments can be completed.

If all the damage inflicted on the victims can be dealt with through compensation payments, then completion of the payment will mark the reconstruction and the end of the accident, making the event itself a thing of the past. If that is the case, then prompt payment of compensation should be the foremost focus of policies for rebuilding Fukushima. However, victims do not feel that the damage they have suffered have been fully covered by the payments, and the payments do not seem to directly translate to rebuilding their normal lives. Furthermore, the prospects for the reconstruction of the regions affected by the accident are still unclear (as we will point out later, the definition of "reconstruction" is multi-faceted).¹⁸ The compensation payment system assumes that the victims can recover the conditions of their lives prior to the damage through the payment and start anew. For the victims of the Fukushima accident, however, compensation may allow them to make ends meet day-to-day but various obstacles still exist that prevent them from restarting new lives. Thus, many of the victims still do not have clear prospects for rebuilding their new lives. For example, if you are in fishery, because the effects of radioactive contamination still persist and you can only engage in trial operations, you still cannot restart normal fishing operations. For farmers, a rigid inspection of radioactive materials is in place and the products can be verified to be safe at least

according to the standards set by the government. Nevertheless, as consumers are psychologically concerned about radioactive contamination of agricultural soil, products "from Fukushima" are still being avoided, resulting in lower prices, and difficulties for the Fukushima farmers remain. Furthermore, a number of senior citizens who were forced to leave their hometowns have had difficulty getting used to wherever they have relocated to and are forced to live lonely lives. There have also been reports about children who moved from Fukushima who have been bullied by others in their new schools. The fact that payment of compensation will not directly rebuild the lives of victims is an inherent limitation of the laws regarding compensation, but this limitation becomes even more apparent in the case of nuclear accidents, where the foundations of local communities and regional industries are fundamentally damaged.

Thus, in reality, compensation payments do not necessarily result in sufficient reconstruction of individual lives nor the rebuilding of local communities, and so the appropriateness of victims' relief that focuses on compensation payment is being questioned. Despite large amounts of compensation being paid out relatively quickly, why did such a contradiction occur? In order to shed more light on this matter, we need to reconsider the very nature of the compensation payment system.

Inherent Limitations of the Compensation System for Nuclear Accident Damage

The compensation system establishes the final monetary amount to be paid to the victims, by officially determining and acknowledging the types of "damages" (compensatory damages) to be paid by the damaging party, from among various tangible and intangible "losses" actually inflicted on the victims (general damages), and also by assessing the degree of such damage. Victims can forcefully collect the designated amount of compensation through lawsuits as a last resort. On the other hand, "pain and suffering" is excluded from the subject of compensation and is considered not worth legal protection. As a result, under the current compensation system, "pain and suffering" that is excluded from the subject of compensation becomes intangible. Furthermore, even in case of "pain and suffering" included in compensation, any amount of "pain and suffering" that exceeds the acknowledged monetary amount would also be considered non-existent. And payment of the acknowledged amount will mean that the damage has been mended.

In general, victims generally do their best to have their "pain and suffering" officially acknowledged as "damage" under such a compensation system and, once that is accomplished, take actions to increase the amount of compensation so that the public will also acknowledge the severity of their "pain and suffering." However, there are inherent limitations to such responses. Although compensation is an alternative method of relief when the damage is irreversible, it is a type of legal fiction to assume that compensation can undo a person's "pain and suffering." In cases of psychological trauma in which, unlike a financial loss, victims cannot simply revert to their original condition, it is clear that treating compensation as a means of restoring the person's original condition is a legal fiction. And if that is the case, no matter how sufficient the compensation system may be, there will always be a gap between the compensation and the victim's recovery from pain and suffering. In addition, once certain kinds of pain and suffering are excluded from damage compensation, any damage is deemed to be non-existent in a legal sense regardless of the "actual" pain and suffering that occurred. In this sense, compensation payments artificially divide the pain and suffering inflicted on the victims, and this structure causes anxiety in the victims. Of course, this is not limited to nuclear accidents, since victims of traffic or medical accidents face the same problems. However, it can be said that the functions of the compensation payment system bring results that are acceptable to other types of victims, whereas with nuclear accident victims, the situation is quite different.

Damage that Cannot be Attributed to Individuals

First, the current compensation payment system is structured with a focus on itemized damage inflicted on each individual or company. That is, the current system is designed to compensate for the infringement of individual interests that are worth legal protection. Individuals' loss of financial contribution or prospective profit would be compensated as financial damages, while their loss of non-financial interests would be classed under consolation money. In traffic, medical, or pharmaceutical accidents, the majority of damages are to specific individuals. Therefore, the individual-centered system of damage compensation functions well in these cases. However, as a result of the nuclear accident, the forced evacuation zones were completely and fundamentally destroyed. Damage caused to the land, housing, and business operations of the residents in the forced evacuation zones can be acknowledged as generating individual damage. But victims who were forced to evacuate not only lost their assets and means of living, but also the local community which served as the home ground of their daily

lives. This is a significant characteristic of the pain and suffering caused by the nuclear accident that is different from other types of pain and suffering that have occurred in the past. Therefore, the pain and suffering inflicted on the residents in the forced evacuation zones is clearly different from the pain and suffering from traffic or medical accidents that do not affect the local community where the victims live. Although nuclear pain and suffering shares certain similarities with air pollution in the sense that they affect a large geographical area, there is no comparison in its severity. When dealing with area-wide pain and suffering that affects an entire region, such as with a nuclear accident, the current compensation payment framework that focuses on individuals cannot fully satisfy the victims' needs. Simply totaling up the damage inflicted on individual victims cannot draw a comprehensive picture of the pain and suffering caused to the local community.

However, at present, there are no well-developed theories in damage compensation laws to thoroughly understand the losses caused to an entire region. Therefore, in order to be brought under the current compensation system, all losses, regardless of the type, must be considered as individual damage. And so long as the system is ultimately designed to compensate for pain and suffering inflicted on individuals, it is difficult to apply such a system to compensate for any losses or pain and suffering that cannot be associated with specific individuals. In short, the current compensation system, developed with a focus on individuals, cannot meet the needs of entire regions destroyed or groups of residents affected by a nuclear accident, and this mismatch causes the current system to be dysfunctional.

Endless Recurrence of Damage

The second factor that limits the function of the compensation system for nuclear accidents is the aspect of time. As mentioned before, for damage caused by traffic or medical accidents, a specific time that the incident occurred can be identified, and while the effect of the damage may be sustained in the future (as aftereffects), the damage itself is transient. On the other hand, with the Fukushima accident, substantial damage is continuously being generated even after the accident, forcing the victims to live with them. First, since radioactive substances dispersed by the Fukushima accident have not been completely cleaned up even in decontaminated areas, damage resulting from low level radioactive rays generated by these radioactive materials (low level radiation exposure) may continue to occur for a long time. There are different opinions regarding the possibility of actual health damage caused by low level radiation exposure, but we must at least recognize the fact that anxiety caused by fear of low-

level exposure will persist. Second, due to an extended evacuation order and because of residents' consideration of the danger of low-level exposure, the infrastructure for local livelihoods was destroyed. Because of this, even though the evacuation orders have been lifted, many residents continue to remain evacuated. Some still live in temporary housing and many continue to face various inconveniences, which forces us to acknowledge that new damage is being created on a daily basis. Third, farmers and fishermen also continue to suffer from damage. For example, for fishermen, a true recovery means being able to fish at sea in Fukushima, like before. However, contaminated water from the Fukushima Daiichi Nuclear Power Plant continues to flow into the sea, and because decommissioning of the reactor is still in progress, it is not certain when they will be able to return to regular operations. While they hope to begin normal operations as soon as possible, compensations for the interruption of business that they are currently receiving will stop as soon as they start normal operations. Yet, there is no guarantee that they will be able to continue normal operations without problems, and this uncertainty makes them hesitant to start again.¹⁹

As stated above, damages that are paid out through the compensation system need to be determined within a limited time frame. However, this means that some of the pain and suffering will be excluded from compensation, and pain and suffering that continues to affect the victims will not be taken into consideration. Needless to say, it is theoretically possible to identify pain and suffering that occurs after compensation has been paid, as newly generated damage, and list them for compensation payment. In reality, however, once the scope of damage caused by the nuclear accident has been established, acknowledging newly occurred damage as directly relevant to the nuclear accident requires proving a causal relationship, which can be considerably difficult.²⁰ In short, while the damage resulting from the Fukushima accident will continue to affect victims in the future, the compensation system only covers transient damage that is commonly assumed to occur and, as a result, victims of the Fukushima accidents will continue to feel like their losses were not completely redressed, even if they have received compensation for them up to a certain period in time.

Relying on the Compensation System

Considering these issues, we are forced to face the fundamental problem of how much we should rely on the compensation system in order to recover from the damage caused by the nuclear accident. As has been examined

earlier in this chapter, the compensation system alone is not sufficient for victims' relief. Needless to say, the principle of "full compensation for damage" must be observed in any case. Victims have the right to demand compensation from the assailant. Obfuscating this principle will not only prevent an accurate calculation of nuclear power generation costs, but also move discussions on nuclear power policies toward the wrong direction. At the same time, we must also be aware that compensation payments for the Fukushima accident have caused the following three divisions among the victims of the earthquake and nuclear accident in terms of the compensation standards that were applied, thus making it difficult to rebuild the affected region.

Those divisions are: a) victims of the earthquake/tsunami and victims of nuclear accidents, b) forced evacuees and voluntary (outside of the zone) evacuees, and c) demarcation within the forced evacuees in terms of their residential places (zone preparing to have the evacuation order lifted, residence restricted zone, and difficult-to-return zone). Meeting certain requirements determines eligibility to receive legal remedies. This is an essential attribute of contemporary law and normally would not cause any major inconvenience. However, in the case of nuclear accidents, and particularly for victims of forced evacuation whose local communities were completely destroyed, the current compensation system may anchor the divisions, making them even worse. (Unlike big city areas such as Tokyo, in the Tohoku region that was struck by the Great East Japan Earthquake and Tsunami, including Fukushima prefecture, there existed strong local communities supporting people's daily lives.) When dealing with relief for the victims of the nuclear accident, we are therefore forced to admit that the current compensation system has only limited capabilities.

We must face how, under the present circumstances, damage that is not normally recoverable and problems that are not solvable through the compensation system might have been forcibly processed within the framework of the compensation system. Secondly, we must recognize the limitations of damage compensation as a principle as well as the compensation system itself, and thirdly, discuss various mechanisms that can possibly complement such shortcomings. To begin, we need to seriously discuss what reconstruction from wide-spread destruction by the nuclear accident actually means. It would not be possible to easily arrive at a clear-cut answer to this question, so we need to be prepared to deal with multiple solutions after carefully examining each aspect of the current state of destruction. For example, we may need to flexibly combine the following to compensate for pain and suffering that will continue to occur, or may newly

occur, in order to meet the various needs of both the victims and the affected areas while stimulating creative ideas for rebuilding them: a life-long medical treatment program under a general framework of the social security system for all Japanese citizens who were exposed to low level radiation, housing aid for not only the residents of the forced evacuation zone but for all citizens who evacuated out of fear from radiation exposure, continuous aid to affected municipalities, aid for NGOs that support the victims, a system to provide financial aid for new and existing businesses in the affected areas, and a system to maintain and rebuild the local community in the affected areas.

Of course, it is also true that, for the victims, the compensation payment system is the primary means of reconstruction. In the following section, therefore, we will also discuss problems that exist in the design of the current compensation system.

Topics for Discussion Regarding the Compensation System

What Japan experienced after the Fukushima accident raised many topics for discussion regarding the design of a compensation system, including the scope of victims, range of damage subject to compensation, and who should be responsible for the payment. Here, we will discuss the following topics in order: (1) who are victims of the nuclear accident, (2) what is included in the scope of damage, and (3) who is responsible for compensation, and (4) what the reconstruction from a nuclear accident means.

1. Scope of Victims of the Nuclear Accident

Evacuation Zone Defined with a Concentric Circle

First, there is a lot of discussion regarding evacuees who were forced to evacuate through government orders. Those forced evacuees are clearly the victims of the Fukushima accident. However, delimitating the mandatory evacuation zone itself is a difficult issue. At first, the Japanese government determined the mandatory evacuation zone using a concentric circle centered around the Fukushima Daiichi Nuclear Power Plant (set at a 20 km, or 12 miles, radius), but then later extended the area more to the northwest according to actual radioactive contamination. The first issue to be discussed is the designation of the evacuation zone with a concentric circle. On the one hand, this evacuation zone did not necessarily match the actual radioactive contamination conditions and thus led to criticism for its arbitrariness. On the other hand, during the early stages, because the

conditions of the contamination were not fully known and there was also a high risk of further leakage of radioactive substances from the power plant, it probably is not fair to criticize the decision to set an evacuation zone based on a concentric circle. However, there is a need to further discuss whether the distance of 20 km (approximately, 12 miles) was appropriate and whether it was necessary to draw lines that divided local municipalities.

In terms of the former, considering the risk of low-level radiation exposure, the question is whether a wider area needed to be designated as a mandatory evacuation zone. At the time, the Japanese government used the standard of 20 Sv a year of exposure to arrive at its decision, but many people in Japan disagreed and still disagree with the appropriateness of this standard. In addition, immediately after the Fukushima accident, the US government recommended a 50 mile (approximately, 80 km) radius from the power plant to be the evacuation zone for US citizens staying in Japan, raising questions regarding the appropriateness of the zone as defined by the Japanese government and concerns for safety spread, especially among residents outside of the mandatory evacuation zone.²¹ As for the latter issue, it became an issue only because the evacuation zone was directly linked to the standard of compensation, and the resulting differences in the amount of compensation among residents within the same local municipality led to the division of that local community.

During the emergency period immediately after the nuclear accident, it may have been necessary to use a concentric circle to define the evacuation zone as a temporary measure. However, following this period, the zone should be redefined according to actual radiation levels, and through established procedures. In Japan, the evacuation zone was reevaluated several times, but the procedure lacked transparency. The concentric evacuation zone was maintained until April 2014 after which evacuation orders were consecutively lifted for areas with low radiation levels. These reevaluations should also be considered in terms of appropriateness of dividing local municipalities.

Finally, designating an evacuation zone has a substantial social effect on not only the relevant areas but also other areas accepting the evacuees from them. Therefore, we need to understand that designating evacuation zones is potentially a highly political negotiation. What might the effects be of, for example, designating an area with a high population concentration as an evacuation zone? This political factor must be taken into further consideration regarding the treatment of those who evacuated from the areas outside of the evacuation zone, which we will discuss in the next part.

Overall, radiation levels are not the only factor that delimits an evacuation zone, and so there needs to be more transparent and effective laws in place to guarantee the “right to evacuate” for residents of areas with high radiation levels that are outside the evacuation zone. Although the Act on Promotion of Support Measures for Lives of Disaster Victims to Protect and Support Children and Other Residents Suffering Damage due to Tokyo Electric Power Company's Nuclear Accident was enacted in 2012 to support the right of evacuation for children and adult victims, there was no realistic policy to put this right into effect and there are strong criticisms that the law is not actually being realized.

Evacuees from Outside the Evacuation Zone

The second topic of discussion which is more critical than the first one is whether to acknowledge the so-called voluntary evacuees, who evacuated to different areas from areas not designated as evacuation zones (either within or outside Fukushima prefecture) in order to escape from the dangers of radioactive exposure. Radiation contamination by the Fukushima accident is not confined to the mandatory evacuation zone but spread to central Fukushima including Fukushima City and Koriyama City, as well as to the northern Kanto area that includes Tochigi prefecture and all the way to the metropolitan regions including Tokyo, though the contamination level there is generally lower. As a result, a number of residents, primarily young mothers with children, evacuated from not only Fukushima but from across northern Kanto to all over Japan. Those “voluntary” evacuees would likely never have relocated unless the Fukushima accident had occurred, so in reality they were forced to evacuate. Based on the concentric circle model determining the evacuation zone, however, it was often argued that their evacuation was voluntary. On that account, their damage claims as associated with the Fukushima accident became a topic of dispute. While the Japanese government admitted that voluntary evacuees have rights to compensation to some extent in December 2011,²² it is problematic that the scope of voluntary evacuees eligible for compensation is limited to only those who were residents of Fukushima prefecture at the time of the accident as there are areas outside of Fukushima that are affected by similar levels of contamination. Further problems have arisen for the forced evacuees. Even forced evacuees from designated evacuation zones are considered to become voluntary evacuees when they remain relocated after evacuation orders were lifted. In fact, after the evacuation order was lifted, in most of the municipalities, only a small population of the residents have returned. As a consequence, the number of voluntary evacuees is

increasing, raising more complications regarding questions of compensation.

Business Operators and Municipalities

Nuclear accident victims are not limited to those citizens who were forced to evacuate. Many business operators inside and outside of the evacuation zone suffered financial losses due to disruptions in their businesses and reduction in sales after reopening their operations. The termination of an evacuation order does not mean that market conditions will return to previously experienced levels. Therefore, there have been having long-term difficulties for businesses. Independent of residents, local municipalities (e.g., cities, towns, and villages) within the evacuation zone are also victims in their own right. This is because not only did they have to increase various expenditures because of the accident, their assets (movable property/real estate) were also damaged by radioactive contamination. Local municipalities and TEPCO have different opinions regarding the calculation methods for compensation. While the central government has provided financial aid to the local municipalities after the Fukushima accident, it has become a topic of dispute how such financial aid should be evaluated in relation to the damage calculation.

2. Scope of Damage

The scope of damage refers to the range of pain and suffering inflicted on victims that is acknowledged as being subject to compensation. The following detailed calculations are performed to determine the amount of compensation for such acknowledged damages, and payments are made for that amount.

Reputational Damage of Business Operators

Under Japanese law, damage that has a causal relation with the nuclear accident is subject to compensation, including compensation for both financial losses (assets/income) and non-economic damage (consolation money). As for financial losses, payments were made to victims who had lost their assets/income from the Fukushima accident. Among those payments, the range of "reputational damage" considered for the compensation payments is significantly greater than in the previous cases. A "reputational damage" refers to a financial loss resulting from consumers' reluctance to purchase products such as agricultural and marine products and to travel to tourist spots out of safety concerns, regardless of whether the government declared them safe. The huge gap between the safety standards set by the

government and people's sense of security is the biggest reason why there were so many claims for reputational damage after the Fukushima accident.

However, it should be kept in mind that not all business operators succeeded in obtaining compensation for reputational damage. Farmers, fishermen, and tourist business (e.g., travel agencies, tourist entertainment facilities, hotels and inns) mostly demanded compensation for reputational damage from the Fukushima accident. When business operators request compensation for reputational damage, they usually file a collective lawsuit through an association such as a business organization or an agricultural cooperative. Since businesses who do not belong to any organization must bear costs for the lawsuit by themselves, it is difficult in practice for them to demand compensation for reputational damage. In addition, when requesting compensation for reputation damage, it is crucial for business operators to submit past business records to prove that such financial losses actually resulted from consumers' reluctance to purchase their products or services. In the case of products, the amount of reputational damage has to be determined on the basis of business data from the last 5 years (including a list of products for each production date, the production amount, expenses and other items). First, an average monthly revenue is calculated on the basis of data from 3 years among 5 years (the data in the years of both the highest and the lowest production is excluded from this calculation). Then, the average revenue is compared with the revenue after the Fukushima accident in order to find out the decline in revenue. After due consideration of fluctuations in production volume and the production amount of each item, the exact amount of damage is finally decided. Therefore, if a business operator does not keep sufficient business data accumulated, the amount of compensation will be greatly reduced.

Despite difficulties documenting losses when filing for reputational damage, actual payments to business operators were significantly larger than in past cases of damage compensation. Thus, the appropriateness of the amount was much discussed. So long as we respect the principle of "full compensation for damage," the compensation for reputational damage paid to businesses is considered appropriate. However, with the Fukushima accident, it is clear that the amount of compensation greatly differs depending on the type of financial damage, and that above all, compensation paid to voluntary evacuees is extremely low compared to those paid to business operators. If compensation amounts calculated according to past business data are to be considered appropriate, then we must conclude that the compensation amounts paid to voluntary evacuees are unjustifiably low.

Non-economic Damage of Forced Evacuees

When it comes to assessing non-economic damage, the focus of dispute has long been how to calculate the standard compensation for forced evacuees. The evacuees, beginning with the sudden evacuation order, were forced to live in a harsh environment for an extended period of time. Residents in the "difficult-to-return" zones have essentially lost their hometowns. Residents in both "zones in preparation for the lifting of the evacuation order" and "restricted living zones," even when they are permitted to return, face local communities that have been destroyed and hometowns that have completely changed. Given the risk and uncertainty of low-level radioactive exposure, deteriorated infrastructure and failed local social systems, only a handful of people immediately decided to return to evacuated zones. There is no doubt that such conditions inflict a great amount of non-economic damage on evacuees, yet it is difficult to evaluate such damage and to calculate it in monetary terms. First of all, we must consider the pain and suffering evacuees experienced after evacuation. There is also a consensus that the existence of a hometown and the functions of the local community had played important roles in the victims' lives before the accident. However, these losses are ambiguous and subjective, and their understanding also depends upon each victim. Therefore, it is difficult to uniformly define them as subject to compensation.

Secondly, even if such pain and suffering could be legally recognized as damage per se, it would be a challenge to calculate a monetary amount for compensation. In the case of the Fukushima accident, the Reconciliation Committee calculated the standard compensation amount for non-economic damage to be 100,000 yen (about 968 dollars) a month. This calculation was strongly criticized by the victims for two reasons. First, the compensation amount was determined without sufficient investigation of the harms from victims' point of view. Second, in the Interim Guidelines of August 2011, the compensation amounts for non-economic harms were calculated by analogy to compensation standards for traffic accidents. Victims argued that non-economic damage in traffic accident cases is very different from the non-economic damage caused by forced evacuation, in terms of separation of families, hardship, fear of radioactive exposure, anxieties about an uncertain future, and psychological trauma.

As mentioned in the previous section, the current system of damage compensation can only deal with community-wide damage by treating it as a matter of individual damage. For that reason, the scope of damage compensation specified by the Interim Guidelines does not cover all of the

various pain and suffering that should be compensated. Accordingly, the evacuees are forced to choose between two options: they must give up on compensation claims entirely or accept the difficulties of proving the existence of uncompensated harms.

Third, the appropriateness of the compensation standard is itself in question. In many lawsuits, and in the appeals to the Center that victims have filed, the claimants have always requested amounts that are higher than the compensation standard. This fact demonstrates that many victims are not satisfied with the amount determined by the Reconciliation Committee. At the very least, in order to satisfy victims, there needs to be a legitimate process for determining the amount of compensation available for non-economic damage.

Compensation for Non-economic Damage for Voluntary Evacuees

Voluntary evacuees from within Fukushima Prefecture are also acknowledged as victims and compensation was made for their non-economic damage as well as their increased daily expenses. However, compensation paid to voluntary evacuees was much lower than that which was paid to forced evacuees. For this reason, many voluntary evacuees filed lawsuits to demand more compensation, but the amount determined by the courts is generally still low. And while free housing had been provided by local municipalities where voluntary evacuees settled, this support measure ended at the end of March 2017. As illustrated by these examples, voluntary evacuees are not sufficiently acknowledged as victims and it is therefore important to discuss how to deal with this problem. The situations of voluntary evacuees from outside the evacuation zone depends upon each evacuee. Therefore, we cannot treat forced and voluntary evacuees in the same manner. On the other hand, so long as the scope of the evacuation zone is problematic in terms of attention to the risk of low radiation exposure, voluntary evacuees should be given as much support as possible. From this perspective, the extreme differences between how forced and voluntary evacuees are treated currently in Japan is beyond acceptable limits.

3. Who is Responsible for Compensation?

In Japan, the Nuclear Damage Compensation Act stipulates that the operator of a nuclear power plant (the electric power company) is solely responsible for compensatory payments and assumes absolute liability for damage caused by a nuclear accident. However, after the Fukushima

accident, it was advocated that the government should assume legal responsibility together with the nuclear operator. This is because the promotion of nuclear power had been a consistent national policy of the Japanese government and thus without the government's support, nuclear power plants would not have propagated in Japan. The additional reason is that the government did not exercise its regulatory authority over TEPCO despite being aware of the dangers of nuclear accidents from large-scale tsunamis caused by big earthquakes.²³ Thus, many of the lawsuits filed by the victims vehemently pursue the government's responsibility as well as that of TEPCO, and several judgements acknowledged joint liability for victims (e.g., the Maebashi District Court in March 2017, the Fukushima District Court in October 2017, the Kyoto District Court in March 2018, the Tokyo District Court in March 2018, the Yokohama District Court in February 2019, the Matsuyama District Court in March 2019, the Sapporo District Court in March 2020 and the Sendai High Court in September 2020). Although it is doubtful that joint liability is always applicable, joint liability makes sense in situations where the government is negligent in exercising its regulatory powers to ensure the safety of a nuclear power plant.

Secondly, further discussions were had about whether the nuclear operator's responsibility is unlimited or limited. If the responsibility is limited, it follows that excesses of this limit should be the government's responsibility. The Nuclear Damage Compensation Act does not limit the responsibility of the operator and places no compensatory responsibility on the government. This means that if the operator goes bankrupt, then any unlimited responsibility becomes meaningless. Therefore, given that the promotion of nuclear energy had been consistently a national policy, revisions to the Nuclear Damage Compensation Act were presented to limit the responsibility of the operator, while making the government responsible. However, limiting the compensation responsibilities of the nuclear operator to a certain fixed amount, regardless of the amount, risks lowering the safety awareness of the operators, which may thus lead to a moral hazard. Furthermore, since the government's responsibility for compensation ultimately becomes the burden of the general public, there is strong opposition in Japanese civil society toward limited liability. Thus, it seems that for the time being in Japan, the nuclear power operator will continue to assume unlimited responsibility.

As mentioned, under the Nuclear Damage Compensation Act, the government is not liable for any damage from the Fukushima accident. Nevertheless, after the accident, the Japanese government established the Nuclear Damage Compensation Facilitation Corporation and has virtually

assumed the responsibility for compensatory payments by pouring large amounts of capital into TEPCO through this Corporation. This means that, regardless of whether the nuclear power operator assumes limited liability or not, in the case of a large-scale nuclear disaster, the government becomes the primary agent of responsibility. This is because it is politically impossible to stop compensatory payments to victims even if the assets of the nuclear power operator are depleted. As long as the government permits potentially dangerous nuclear power generation, the government must be legally responsible not only for the compensatory payments but also for the recovery of the life of each victim and the rebuilding of the local community.

4. Method of Dispute Resolution

If the compensation acknowledged by the nuclear power operator or the government is not sufficient to cover the damage, disputes will arise between the nuclear power operator/central government and victims. In the case of the Fukushima accident, the following two points regarding procedures for the victims in pursuing the responsibility of TEPCO for compensation have become topics of dispute. First, civil litigation procedures in Japan lack a system to integrate allegations of multiple individuals who are involved in the same accident, similar to class-action lawsuits in the US, for cases involving compensation for damage resulting from unlawful acts such as a nuclear accident. This shortcoming becomes especially critical when a large number of victims seek to recover relatively small amounts of damages. After the Fukushima accident, the Center was established under the Reconciliation Committee as an alternative dispute resolution (ADR). Highlighting the shortcomings of this system, the town of Namie filed a claim with the Center as representatives of over 15,000 residents and demanded increased compensation for their non-economic damage.

Second, the ADR procedures under the Center lack effectiveness. Victims took issue with the lack of actual results of the ADR procedure. The Center offers mediation and conciliation, not arbitration. At the beginning, it was discussed whether or not the settlements proposed by the Center should have binding authority on TEPCO. In reply to this discussion, TEPCO repeatedly expressed its willingness to sincerely accept the settlement proposals that the Center presented. Taking this into account, the idea of a unilateral binding of authority was not adopted. During the several years after the accident, TEPCO always accepted the settlement proposed by the Center and so dispute resolution by the center remained functional.

However, beginning in the spring of 2014, TEPCO began to refuse settlement proposals for some of the cases, including the aforementioned allegation by the town of Namie, and settlement proposals for collective complaints in particular. The government has been implicitly allowing TEPCO's refusals. Consequently, disputes have not been resolved swiftly for many of the victims. As described, since many of the victims are not satisfied with the standard determined by the Reconciliation Committee, it is a grave issue that the means of dispute resolution are not functioning as expected. To conclude, in order to cope with the dissatisfaction of the victims, this matter requires legal and political means, such as establishing new compensation guidelines or assigning unilateral binding authority to the Center's proposals.

Compensatory Payments and Reconstruction

Various issues that surround the current compensation system are also deeply intertwined with the meaning of "reconstruction." Damage compensation is normally payment for what was lost. However, a nuclear accident takes away not only the past but also the present and the future from the victims. Now that ten years have passed since the Fukushima accident, the completion of compensatory payments, the lifting of evacuation orders, and the resuming of normal farming and fishery are often equated with completion of the "reconstruction" period. However, for victims of the nuclear accident, their pain and suffering are still ongoing and reconstruction remains a goal for a distant future. We need to understand the "pain and suffering" caused by the nuclear accident and the responsibility for compensation in ways that are aligned with the long-term "reconstruction" process. Our starting point should recognize that while damage compensation is only a step towards reconstruction, damage compensation is not the same as recovery.

When we discuss the relationship between "damage compensation" and "reconstruction," we have to think of the meaning of "recovery" and its ambiguity. In the ten years since the Fukushima accident, the Japanese government has put forth various efforts for the recovery of Fukushima. The Reconstruction Design Council that was established in April 2011 immediately after the earthquake and tsunami discussed various policies aimed at reconstruction, with the participation of many intellectual figures with close ties to the Tohoku region. Then on June 25 of the same year, the Council made public the "Recommendations on Reconstruction Planning," which the government adopted as guidelines for reconstruction. The

government, at the same time, appointed a Minister for Reconstruction, and in February of 2012 established the Reconstruction Agency, prompting various recovery projects for several years. However, no clear definition of recovery is found in their “Recommendations on Reconstruction Planning” nor in any of the documents issued by the Reconstruction Agency. This is because each has its own definition of “reconstruction.” Some would see reconstruction as returning to life before the disaster, while others consider reconstruction as a way of life with hope for the future, even if that life has changed since before the disaster. Furthermore, the definition of reconstruction is even more complex for the victims of the Fukushima accident. Those who evacuated, those who did not, those who have returned and those who remain evacuated—the damage, harms, and losses that these victims suffer vary widely, and many of them are irreversible. Nonetheless, they must all continue to look forward and continue to live their lives. Given such varied forms of recovery, we cannot depend solely on the uniform policies of the central government. In order to promote a reconstruction that suits the various needs of Fukushima, the role of municipalities, in particular those which are the closest to the victims (e.g., cities, towns, and villages) is so important. The central government should cooperate with those municipalities for the purpose of designing and implementing a compensatory payment system (e.g., standards for damage compensation and dispute settlement procedures) that targets and helps individual victims and the regions they call home.

Conclusion: Building a New Compensation System and The Process of System-Building

The primary objective of a damage compensation system that is utilized for nuclear accident victims is recovery from the damage inflicted on them. However, what the victims truly need and desire is recovery of their peaceful lives before the accident. Compensation does not bring forth a recovery of their original lives and must be the last resort when no other alternative measures can satisfy this need. For a true reconstruction, together with the recovery of victims, the local communities which have been totally destroyed need to be rebuilt, which is difficult to imagine let alone achieve under the current compensation system that does not acknowledge the destruction of a community as an independent damage. Although it is not clear whether or not such destruction should be included in the scope of damage which deserves compensation, compensation for individual victims is not going to rebuild a destroyed community, and the lives of victims who had interactive

relationships with other people in their communities cannot be rebuilt satisfactorily.

The experience of the Fukushima accident indicates that we need a compensation system that leads to better future lives for the victims individually and collectively on the basis of understanding that each individual has their own specific suffering within the overall situation where local communities were utterly destroyed. For example, if nuclear accident victims residing in the mandatory evacuation zone were to file a collective lawsuit and under some mutual agreement contribute a part of awarded compensation to a fund for the rebuilding of their local communities, we may be able to better visualize damage to communities that could not be dealt with through individual compensation alone, and to push the reconstruction of the affected area forward even a little.

Last but not least, what is needed for the establishment of such a system is fair and adequate procedures. It is necessary to establish such a system in collaboration with the victims, and by incorporating the opinions of various organizations that are active in the local areas, basic municipalities that assume primary responsibilities for the area, as well as international organizations. Such collaboration will in turn help establish better working conditions for reconstruction. Fundamentally, compensatory payments are for settling of the past. However, in the case of a nuclear accident where damage is continuously reproduced, compensation for past damage must be made in ways to generate new dynamism that leads to building a new future.

To fulfill our responsibility as citizens who live with the Fukushima accident, we will continue to examine the limits of the current compensation system and to explore possibilities to improve its functions, thereby continuing to think of what we can do to recover the peaceful life before the accident that victims truly desire.

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1. With the aid from the government, as of February 5, 2021, Tokyo Electric Power Company has paid a substantial amount of compensation (approximately, 9.7 trillion yen, or 92 US dollars) to many victims (approximately, 1,127,000 cases of forced evacuees, approximately, 1,308,000 cases of voluntary evacuees, and approximately 520,000 cases of corporate and individual business operators). Tokyo Electric Power

Company, "Records of Applications and Payouts for Compensation of Nuclear Damage," February 5, 2021.

2. "Results of the consultation business and the content of the consultation," Nuclear Damage Compensation and Decommissioning Facilitation Corporation, 2020.
3. Nihon Bengoshi Rengokai (Japan Federation of Bar Associations), "Bengoshi hakusho 2019-nen ban" (Attorney white paper 2019), pp. 140-141.
4. No lawsuits have reached the supreme court's rulings as of December 2020.
5. See Suami's report, this chapter, Section V.
6. Japanese Government Ministry of Education, Culture, Sports, Science, and Technology, "Fukushima ni okeru hinan no gaikyo" (The status of evacuation in Fukushima).
7. "Kanbenren ga yuku, dai 4 kai" ("The Kansai Bar Association on the move, No. 4"), *Kanbenren dayori* (Kansai Bar Association Newsletter), No. 235, September, 2016, pp. 1-2.
8. All names of individuals used in this paper are pseudonyms.
9. Fukushima Prefectural Federation of Fisheries Cooperative Associations, 2020, <http://www.fsgyoren.jf-net.ne.jp/siso/sisotop.html>.
10. Tokyo Electric Power Company, "Records of Applications and Payouts for Compensation of Nuclear Damage," February 5, 2021. See also Ashina's report, Section I.
11. See Ashina report, Section I.
12. This section was written in 2016.
13. "Otsu District Court suspends operations at Kanden Takahama nuclear power plant," *Nihon Keizai Shinbun*, July 12, 2016.
14. The Osaka High Court reversed this decision in March 2017.
15. "Gal: A unit of acceleration which represents the intensity of seismic acceleration of the foundation/building due to an earthquake," according to https://www.kepco.co.jp/english/energy/nuclear_power/jishin_ss.html.
16. Tokyo Electric Power Company, "Records of Applications and Payouts for Compensation of Nuclear Damage," February 5, 2021.
17. See Ashina's report, this chapter, Section II.
18. For example, in the case of Namie, where residents were forced to evacuate after the nuclear accident, although the evacuation order was lifted at the end of March

2017 except in certain areas, of the total population of 18,020, only 440 people have returned as of the end of November 2017. Even at the end of December 2020, only 1,554 people among the total population of 16,718 reside in the territory of Namie.

19. See Takahashi's report, this chapter, Section II.
20. Evacuation order after the Fukushima accident has been lifted in many of mandatory evacuation zones, and some residents have already returned. However, there have been cases reported of difficulties in maintaining businesses by returned business operators, and these are becoming obstacles for residents to return or towards rebuilding. For these instances, TEPCO maintains that compensatory payments have been completed, and that these reported difficulties are not related to the nuclear accident. Under the current compensation system, it is not easy to get acknowledgment that such revenue losses of the business derived from the nuclear accident.
21. "U.S. urges citizens within 80 km of Japan plant leave," Reuters, March 17, 2011.
22. See Ashina's report, this chapter, Section II.
23. Tokyo Denryoku Fukushima Genshiryoku Hatsudensho Jiko Chosa Iinkai (National Diet of Japan Fukushima Nuclear Accident Independent Investigation Commission), "Kokkai Jikocho Tokyo Denryoku Fukushima Genshiryoku Hatsudensho Jiko Chosa Iinkai chosa hokokusho" (Report of the National Diet of Japan Fukushima Nuclear Accident Independent Investigation Commission), National Diet of Japan Fukushima Nuclear Accident Independent Investigation Commission, 2012, <https://dl.ndl.go.jp/info:ndljp/pid/3514600>.

Mapping Three Mile Island

NUCLEAR LIABILITY AND COMPENSATION IN THE UNITED STATES

M. X. Mitchell

On March 28, 1979, the core of Reactor 2 at the Three Mile Island Nuclear Generating Station near Harrisburg, Pennsylvania began to melt down.¹ Radiation levels built to dangerous levels inside the facility's buildings as radioactive gasses escaped the plant through a ventilation stack.² The plant's operator and US government agencies had no immediate way of ascertaining how much of the core had melted or how much radioactive material had escaped. Some of the plant's radiation monitors went off the scale and failed. A small offsite network of twenty thermo-luminescent dosimeters (TLDs), meanwhile, lay unevenly dispersed and too widely spaced to track the precise path of the effluent.³ By Friday, March 30, Pennsylvania Governor Richard Thornburgh had advised all pregnant women and pre-school-aged children within a five-mile radius to evacuate. Thousands of residents left the area as scientists, engineers, and regulators scrambled to control the meltdown and assess its effects.⁴

Over the months and years that followed, the Three Mile Island (TMI) incident became a source of legal controversy over nuclear compensation. Amidst uncertainty over the magnitude of offsite contamination and distrust

of corporate and government actors, residents filed thousands of claims for compensation in US federal and state courts.

This chapter explores injury litigation arising out of TMI as a means of mapping the US system of liability and compensation for offsite harms caused by nuclear power generation. TMI was the first major incident in a civilian nuclear power plant worldwide. It was also the first major test of the US legislation that governs and limits liability for civilian nuclear power incidents—the Price-Anderson Nuclear Indemnities Act. Consequently, TMI provides an important window into questions at the heart of nuclear liability and compensation: Who is a proper claimant? How are the geographical and temporal boundaries of a disaster determined? What knowledge and knowers are privileged in these processes?

Analysis of TMI offers an important point of comparison to the later-arising catastrophes at Chernobyl and Fukushima for several reasons. First, the TMI incident was far less severe. Unlike the Chernobyl facility, which did not employ any kind of containment, the TMI 2 reactor sat within a robust containment vessel. Later investigations revealed that about half of the reactor core melted, but the containment vessel remained intact.⁵ Although legal claimants contested the magnitude of the release, damage from the TMI incident was largely limited to short-lived, airborne emissions of radioactive noble gasses through a vent stack. By way of comparison, the International Atomic Energy Agency (IAEA) has rated the TMI incident as a level 5 “accident with wider consequences” on its seven-tiered International Nuclear Event Scale. It has rated both Chernobyl and Fukushima as level 7 “major accidents”—the most serious category in the IAEA classification scheme.⁶

Because the TMI incident was far less severe than the other reactor disasters discussed in this report, it sheds light on how the boundaries of nuclear compensation are drawn and contested when uncertainty abounds and causal linkages between incident and injuries are difficult to discern. After TMI, this process was shaped by legal disputes between claimants and the operating corporation—a private corporation represented in court by lawyers funded by private nuclear insurance pools. US government participation in the claims process was largely limited to adjudication of intractable disputes by the federal courts.

This raises the second major distinction between the TMI incident and the Chernobyl and Fukushima disasters: claimants sought compensation not from governmental or quasi-governmental entities, but from private

corporations. They ultimately did so within an adversarial litigation system, rather than a system of entitlements (as in the case of Chernobyl) or a government-crafted administrative settlement scheme (as in the case of Fukushima). Courts' reliance on routine tort (injury) law to set the standards for recovery, in turn, raised difficult legal and scientific challenges for the claimants. Foreclosed from participation in making the rules of nuclear compensation in the first instance, everyday people who faced the risks of nuclear power generation fared poorly in the US courts. The TMI claimants' chief avenues of participation in setting the boundaries of nuclear compensation were a series of long, arduous, costly, and ultimately unsuccessful legal disputes. The system that governed injury claims after TMI endures largely unaltered today.

THE PRICE-ANDERSON NUCLEAR INDUSTRIES INDEMNITY ACT

At the time of the TMI incident, the US legislative regime governing nuclear reactor meltdowns focused on promoting foreign policy goals and growing private industry, rather than on protecting the public from harm. Beginning in the 1950s, the US pioneered a legislative regime that promoted private insurance and technology industry participation by shielding corporate participants from the full costs of a catastrophic nuclear disaster.

The United States' regulation of reactor liability emerged in response to Cold War politics. During the 1950s, the Eisenhower administration sought to promote the peaceful uses of nuclear energy as a salve against the horrors of nuclear weapons and a bargaining chip in US foreign policy.⁷ Concurrently, the US adopted a model of public-private collaboration in the field of nuclear power. Facing the potential of liability for a nuclear reactor catastrophe, corporations such as General Electric, Westinghouse, and Monsanto lobbied for special protections.⁸

Lawmakers designed a *sui generis* legislative regime, the Price-Anderson Nuclear Industries Indemnity Act of 1957, to foster private participation in developing nuclear power by limiting the financial risks that corporations would face. The Act channeled the financial costs of all public liability—injuries to persons and property outside the boundaries of a nuclear facility (excepting certain workman's compensation claims and acts of war)—to the operators of nuclear facilities (i.e., the power companies). It shielded other industry participants, such as suppliers of parts and designs, from all financial responsibility.⁹ Concurrently, the Act also limited the financial

responsibility of nuclear plant operators to the costs that newly forming nuclear insurance pools were willing to underwrite. (In the earliest decades of the Act, the US government also covered an additional increment of funding, though this was later phased out.¹⁰)

Protecting the public from the risk of nuclear power was not the primary goal of the legislation at its inception.¹¹ From the outset, the total amount of funding for public liability fell far short of the potential cost of injuries to the public that could result from a catastrophic meltdown. US scientists estimated in 1957 that a meltdown could cause up to \$7 billion in damages, but the Price-Anderson Act, in its initial iteration, limited guaranteed compensation to \$560 million.¹² This left open the possibility that losses to citizens and communities near a malfunctioning plant would not be compensated fully in the event of a major disaster.

The Price-Anderson legislation enabled lawmakers to treat civilian nuclear power as a financially exceptional field. The legislation fostered the private insurance industry by keeping the US government from becoming a primary insurer.¹³ Meanwhile, the regime ensured that the full risks of nuclear electricity generation were not reflected in the price of parts, transit, or kilowatt hours.

This system relied on private insurers as the primary gatekeepers of the claims process, leaving the courts as the final forum for recourse in difficult disputes. Insurers, not US government agents, would interact with claimants and take a first pass at judging the validity of claims. The Price-Anderson regime also assumed, however, that major incidents would generate contentious litigation. Thus, the state and federal courts would be the final arbiters of claims against operators. Under this regime, the nuclear insurers would be responsible for defending litigation claims against operators. Insurers would be both gatekeepers in the claims process and interested parties in ensuing litigation.

The Act created an exceptional regime for managing financial risk, but it left the substantive laws of injury largely unaltered. The system left in place all of the typical legal obstacles to making a successful claim under civil laws governing injury to persons and property, known as tort laws. Although the specifics of tort laws varied among the United States' fifty states, claimants would face some similar hurdles in making claims. Among other things, in the case of bodily harm, a claimant would have to prove her injury was more likely than not caused by ionizing radiation.

As legal commentators recognized in the 1950s, the nature of radiation exposure and the kinds of injuries it could induce raised special challenges for tort claims. Radiation exposure is difficult to trace. A person harmed by radiation would need the help of experts and specialized equipment to establish that they had been exposed. Many of the injuries caused by radiation, moreover, are not specific. Solid tumor cancers, for instance, commonly arise from a variety of causes that cannot be discerned from a tumor's biological characteristics. This would make it very difficult for a claimant seeking to prove that exposure to ionizing radiation, rather than some other factor, had more likely than not caused her injury. Finally, radiation injuries could take many years to manifest, creating additional problems of proof and difficulties surrounding procedural limitations on the time frame in which a case could be filed.¹⁴

Legislators initially justified this financially exceptional but legally mundane regime as a temporary measure to foster the growth of the nuclear industries. It became permanent, however, in the decades that followed. The legislative regime remained largely intact over time, with some changes to increase the portion of liability that the insurance pools would underwrite, to phase out government contribution, and to limit operators' defenses against liability in some extreme circumstances. By 1979, the Act required operators to carry \$140 million in insurance for each facility. If the costs of public liability outstripped this primary layer of insurance, every operator would be obligated to pay retrospective premiums of up to \$5 million per reactor. The secondary layer of insurance provided for about an additional \$340 million in insurance coverage.¹⁵ If damage awards outstripped these coverages, claimants would not be fully compensated for the harms they suffered.

The amended Act also contained provisions intended to ease legal hurdles for plaintiffs in the case of a major incident—dubbed in bureaucratic-speak an “extraordinary nuclear occurrence” (ENO).¹⁶ To qualify as an ENO, a nuclear incident had to meet two criteria. First, the incident had to cause a substantial release of radiation offsite or substantial radioactive contamination offsite. This could be measured by dose to persons or exposure of environments.¹⁷ The criteria set these thresholds quite high, for example, requiring a skin dose of at least 60 rem to qualify—a dose high enough to cause immediate symptoms of acute radiation sickness in some people. Second, an incident also had to cause actual or likely substantial offsite damages, measured in harm to life or financial damage.¹⁸ These criteria were less stringent, requiring, for example, only \$5 million in aggregate financial harm.

If US regulators deemed an incident to be an ENO, several defenses against liability would be waived and the statute of limitations set uniformly at three years following discovery of an injury, provided the injury was discovered within 10 years of the ENO. A plaintiff would still have to prove that the ENO caused her injury and would also have to prove damages—the most difficult hurdles in any radiation injury case.¹⁹ The amendments consequently left the rules of state tort laws intact while lowering some barriers to a plaintiff's recovery.

Anti-nuclear activists were not appeased by these periodic amendments to the Price-Anderson regime. During the early 1970s, public interest groups began to challenge what they saw as an inequitable distribution of the risks and benefits of nuclear power. In 1973, individuals living in the proximity of nuclear plants under construction in North and South Carolina sued Duke Power. They argued, in part, that the Price-Anderson Act violated the Equal Protection Clause of the US Constitution because the limitation of corporate liability placed a disproportionate burden of the risks and costs of nuclear energy on the victims of an accident.²⁰ The citizen plaintiffs won at trial but faced difficulties on appeal.

On June 26, 1978, less than one year before TMI, the US Supreme Court held unanimously that Congress had acted constitutionally in limiting liability in order to promote the production of nuclear energy.²¹ Over two decades after its genesis, the US nuclear liability regime remained focused on private, corporate interests—insurers, plant operators, and suppliers—protecting the nuclear industry at the expense of the public.

PRICE-ANDERSON AFTER TMI

The TMI incident tested the Price-Anderson regime in unprecedented ways, exposing the complicated private-public nature of nuclear compensation in the United States. Up until 1979, claims brought under the Price-Anderson regime had been fairly small, work-related ones mainly handled through the insurers' administrative claims-processing procedures. There had been no major incident at a civilian nuclear facility, and no claim had ever come close to the financial ceiling of the primary layer of insurance.

Nuclear insurance in the US had actually proven to be a lucrative, low-risk field with minimal litigation. The aggregate of all paid claims was quite low. Between 1957 and March of 1979, for example, the nuclear insurance pools paid only 28 claims totaling \$1,453,911.²² All of these claims arose in the

context of workers' and contractors' activities and none had involved a claim by a member of the public. It appears that all claims brought under the Price-Anderson Act and terminated prior to TMI were resolved through the insurers' administrative claim processing procedures rather than through litigation.²³

In comparison to the low rate and cost of claims, the insurers had charged substantial premiums. For example, in 1957, the insurance pools charged about \$300,000 per-year per-facility for \$60 million in required coverage.²⁴ These costs increased over the decades along with increasing coverages and inflation. Although the insurers returned a portion of unused premiums periodically to avoid taxation, the business was still lucrative since claimants made relatively few demands on the insurers' reserves.

The TMI incident forced nuclear insurers to reckon with a much larger, costlier, and more complicated incident than they had previously handled. On Friday, March 30, Pennsylvania Governor Richard Thornburgh advised all pregnant women and pre-school-aged children within a five-mile radius of the plant to evacuate.²⁵ An estimated 144,000 people—roughly 39% of the population within the 5-mile radius—evacuated.²⁶

The nuclear insurance pools moved quickly to set up claims-processing operations near the plant. By March 31, they had opened a claims office in the area and dispatched claims officers to the Red Cross shelter at Hershey Stadium. All told, the insurers paid 3,806 claims worth about \$1.3 million for evacuation expenses and lost wages incurred by residents living within a five-mile radius of the plant during the eleven-day evacuation advisory.²⁷ These smaller, routine claims associated with the costs of evacuation nearly outstripped the combined cost of all claims paid before TMI.

The incident also gave rise to extensive litigation—a first in the Price-Anderson Act's long history. The Price-Anderson Act's draftspersons had focused on the financial terms of the legislation, leaving courts to deal with silences and legal ambiguities. The TMI incident now forced courts to begin to interpret the Price-Anderson Act's untested provisions as a variety of claim types went into litigation—not least, residents' claims of injury.²⁸

The TMI injury claims centered on uncertainty surrounding the release of radioactivity from the plant. As mentioned, the ability to trace radioactive releases during the crucial early hours and days of the incident had been hampered by an inadequate number and distribution of TLDs. After extensive testing for radionuclides in the environment surrounding TMI, a US interagency taskforce concluded in 1980 that any radiation exposures

had been too low to cause illness. The taskforce calculated a maximum individual dose of only 100 millirem (1 millisievert)—roughly one year's dose of naturally occurring background radiation for most people living in the United States.²⁹ Because the estimated exposures were so low, the US Nuclear Regulatory Commission concluded that the incident had not been an ENO.³⁰ This ruling benefitted the operator and the insurers tasked with defending it in court by ensuring that all legal defenses would be available to them.

This version of events did not sit right with local people who had begun to connect with Japanese industrial health and antinuclear activists visiting the area in the wake of the meltdown.³¹ As the community came together around questions of dose, many individuals recalled experiencing strange tastes and smells, erythema, and nausea. Others observed a variety of harms to animals and the environment.³² Residents sought to understand potential linkages between their observations and the TMI incident, but their concerns were largely dismissed by US government agencies and studies.³³

Despite the volume and number of studies undertaken by US government agencies to trace radionuclides, residents remained distrustful and upset that few officials had taken time to listen to them or to assess the harm to their bodies and environments.³⁴ As early as spring of 1979 residents began to sue in state and federal courts seeking to remedy what they felt was shoddy science. In 1981, the operator's insurers reached settlement on a class action lawsuit, filed in the US Federal District court for the Middle District of Pennsylvania.³⁵ The plaintiffs had sought class certification for several classes of individuals situated within a twenty-five-mile radius of the plant.³⁶ The insurers, which had previously only entertained economic loss claims from a five-mile-radius evacuation zone surrounding the plant, now agreed to pay \$20 million for the reimbursement of economic losses of individuals and businesses within this broader area. In addition, they provided a \$5 million public health fund to support epidemiological and environmental studies.³⁷

The Public Health Fund's work failed to salve residents' worries. An independent 1984 review of dosimetry sponsored by the Fund actually further kindled residents' concerns, suggesting that government dose estimates had been problematic and incomplete.³⁸ By this time, some residents had begun to receive diagnoses for health problems they associated with possible radiation exposure—ailments like thyroid conditions and a variety of cancers. Local activists turned to both science

and law, mobilizing on their own to collect data about health and local environments and filing scores of lawsuits.³⁹ By 1985, over 2,000 individuals had filed personal injury claims in state and federal courts in Pennsylvania, New Jersey, and Mississippi.⁴⁰

Initial disputes centered on questions of whether US federal or state courts would exercise jurisdiction over the injury claims. Though a technical legal issue, in personal injury claims, jurisdiction can have profound consequences for the result of a dispute. Legal professionals typically assume that state courts favor injury plaintiffs and federal courts favor corporations. Consequently, TMI's operator initially removed all of the claims to US federal court in the Middle District of Pennsylvania. In declining to declare the TMI incident an ENO, however, the Nuclear Regulatory Commission vitiated the clearest source of federal jurisdiction. The US Court of Appeals for the Third Circuit ruled in the plaintiffs' favor, holding that the Price-Anderson Act did not confer jurisdiction on the federal courts. Pending claims were consolidated in state court in Dauphin County, Pennsylvania.⁴¹ Not long after, in 1985, the insurers paid roughly \$14.25 million in settlements to about 280 claimants, taking the public position that they had settled not because the claims were valid, but to avoid the cost of litigation.⁴²

This small victory was short-lived. In 1988, Congress created a federal cause of action for "public liability" suits and retroactively conferred jurisdiction on the US federal courts.⁴³ The defendants immediately removed the more than 2,000 remaining personal injury claims to federal court in the Middle District of Pennsylvania, which would apply Pennsylvania tort law to the dispute. Pressure toward settlement dissipated, and the injury claims began to slowly work their way through the pre-trial motions.

The outcome-determinative features of the dispute did not become clear until 1995, when the court held that plaintiffs needed to demonstrate they were exposed to at least 10 rem of radiation.⁴⁴ This was a sub-acute dose-level widely agreed by scientists to cause an increased risk of harm.⁴⁵ As in most injury lawsuits in the United States, the plaintiffs had to demonstrate it was more likely than not (i.e., 51% likely) that radiation from the meltdown had caused this dose. Given the lack of scientific consensus over the effects of low-dose radiation, the court reasoned that, as a matter of law, plaintiffs would not be able to meet their burden of proof if they showed a lower level of radiation exposure.⁴⁶

The deck was stacked against the plaintiffs from the outset. Under the rules governing the admission of expert evidence, US government agency studies and reports were automatically admissible.⁴⁷ In the case of TMI, those studies had concluded that residents had not been exposed to levels of radiation sufficient to cause injuries. As discussed above, moreover, civil law evidentiary burdens were in tension with how radiation exposure was understood to cause or contribute to bodily harm. Many radiogenic cancers can also arise from other causes. In many other cases, radiation exposure does not necessarily cause injury, but rather combines with other factors to increase a person's overall risk of developing particular cancers. The plaintiffs would have to produce persuasive expert evidence in an attempt to establish causation.

This introduced problems of cost. Where the operator could rely on government-funded studies to support their defense, the plaintiffs had to develop extensive and novel scientific studies. The plaintiffs' attorneys very likely covered those costs up front. In the vast majority of personal injury cases—and presumably in the case of TMI, though the archival record is silent on the point—attorneys represent claimants on a contingent fee basis. Under this method of payment, claimants do not pay any expenses or lawyers' fees unless they win a verdict or a settlement. Typically, the attorneys are entitled to recover their expenses, including costs of expert reports, and thirty percent of the settlement or judgment. This process creates incentives for lawyers to attempt to save on costs.

The plaintiffs focused on developing expert evidence of dose that US government agencies had overlooked—principally the effects of radiation on sufferers and plants and animals in the region. To do this, they assembled an impressive array of experts in dose reconstruction, drawn from experiences studying a number of other nuclear incidents, most notably Chernobyl. Although the Chernobyl disaster had occurred seven years after the TMI incident, the lengthy litigation process meant that data and experts from Chernobyl were now available to the TMI plaintiffs. Well-regarded experts from the US nuclear complex and government facilities similarly joined in the plaintiffs' cause. So did a number of other physicians, epidemiologists, veterinarians, and dose reconstruction experts from academic institutions, private practices, and consulting businesses.⁴⁸

The plaintiffs' experts, in turn, collaborated closely with community activists to identify areas where harm to persons and environments appeared to aggregate.⁴⁹ This close collaboration with sufferers was a routine practice in retrospective dose reconstruction.⁵⁰ For the plaintiffs, however, the

collaboration represented a new and welcome opportunity to make the case that they had been harmed by the meltdown. Working in this fashion, the plaintiffs produced a number of small scientific studies geared toward proving exposure levels by establishing dose ranges in plants, animals, and people.

Despite the plaintiffs' development of several intriguing pilot studies, other aspects of the attorneys' work practices undermined the case. For reasons unclear in the archival record, but likely related at least in part to cost, the plaintiffs' attorneys directed or permitted their experts to file piecemeal letters, affidavits, and responses of various sorts, rather than formal, comprehensive expert reports typically introduced in litigation.⁵¹ In many cases, the studies themselves were not as robust as they could have been. Cytogeneticists, for example, neglected to employ established techniques to account for problems introduced due to the passage of time.⁵² Immunologists did not examine the patients or their full medical histories to rule out other possible causes of immune suppression.⁵³ On top of this, the plaintiffs' lawyers routinely missed court-imposed filing deadlines, which, as any practicing lawyer knows, can easily be fatal to a case.

The already high evidentiary burdens placed on the plaintiffs, coupled with the lawyers' conduct, proved insurmountable across a series of pre-trial hearings to assess the admissibility of the plaintiffs' expert evidence. The court excluded almost all expert materials that had been untimely filed. This reached nearly every expert in the case, since the experts' materials trickled in letter-by-letter and affidavit-by-affidavit over an extended period of time.⁵⁴ After filtering out most of the late-filed documents, the court then ruled to exclude almost all of the plaintiffs' remaining expert testimony on grounds that it was unreliable and would not help a trier of fact (i.e., a jury or judge) to decide the case. The court's decision was motivated in large part by the vast corpus of government studies on the incident. Where the plaintiffs had to pay for, and introduce new studies and testimony, the defendants had been able to rely on voluminous government data. Focusing on these reports and on expert testimony that very little radioactive material had been released from the plant in the first place, the defendants were able to persuade the judge to exclude evidence of high doses as unreliable.⁵⁵

On the balance, although the plaintiffs had introduced some novel evidence of harm in their bodies and in living organisms in the regions around the plant, the court concluded they could not, as a matter of law, prove it was more likely than not that they were exposed to a dose over 10 rem. The plaintiffs' experts had established the *possibility* of a larger exposure, but

not its *probability*. This severed the causal link between plaintiffs' suffering—their cancers and injuries—and the TMI incident. The trial court entered summary judgment in favor of the defendants, terminating the case in the pre-trial stages.⁵⁶ The Third Circuit Court of Appeals affirmed, ruling on its final appeal in 2002, more than twenty years after TMI.⁵⁷

TMI AND THE FUTURE OF NUCLEAR COMPENSATION

Today, the TMI incident serves as a dark mirror, reflecting deeply held beliefs about nuclear power. Nuclear insurers and industry participants look back at TMI as a successful proof of concept of the Price-Anderson regime. The nuclear insurers paid out nearly \$71 million, including payments of approximately \$29 million in defense-side legal fees. (The plaintiffs' legal fees, covered by the plaintiffs' law firm, were not included in official calculations of the cost of TMI.) This fell well within the site's primary layer of insurance coverage.⁵⁸

The insurance pay-outs tell only part of the story, however. The cleanup of TMI lasted more than ten years and cost approximately \$1 billion. The Japanese government furnished \$18 million and sent engineers to participate in the cleanup as a means of building experience in dealing with nuclear incidents. The remainder of funding came from nuclear property insurers, distinct from third-party liability insurers, who paid about \$300 million; ratepayers, who paid about \$125 million; shareholders; the Department of Energy; and the states of Pennsylvania and New Jersey. All told, the TMI incident cost approximately \$1.7 billion, and the publics that had been put at risk footed a large portion of the bill.⁵⁹

Those who attribute their suffering to the TMI incident, meanwhile, continue to feel the system failed them. Contentious litigation over the incident lasted roughly twenty-three years and cost tens of millions of dollars. Most claimants never received compensation for their injuries or felt heard by a system that discounted their suffering. Almost forty years after the incident, whispers of a cover-up continue to circulate in some communities.

The plant itself remains set on the Pennsylvania landscape, though it no longer produces electricity. The cost of operating the plant ultimately proved too high to compete with cheaper sources of power. Pennsylvania's legislature declined to further subsidize the plant. Forty years post-

meltdown, TMI has been mothballed. Its cooling towers still mark the horizon as “spent” but highly radioactive fuel remains sheltered within.

The edges of nuclear disaster will always be porous. Nuclear contamination endures for generations and heeds few boundaries. Radiobiological knowledge shifts as each disaster unfolds and new techniques of study emerge. Determinations of who must be compensated after a nuclear disaster remain highly contestable and will often—perhaps always—be challenged. For every claimant who recovers compensation, there is another, barely disqualified claimant whose suffering will not be redressed.

Disputes over compensation at TMI demonstrate that it is not only the outcome, but also the *process* of determining the boundaries of compensation that matters to claimants. To residents living around the TMI plant, the process seemed unfair and unjust. They bore the risks of TMI and stood to suffer the most from the incident, yet government and industry actors disregarded their voices and experiences. Interested parties—corporations, insurers, and government agencies—had controlled the process. Whether or not one believes that the TMI incident caused radiogenic harm in the region or to the claimants, the process itself fueled distrust of the nuclear complex and feelings of disenfranchisement that reverberated throughout publics in the US and abroad.

The TMI claimants’ experiences are but one small part of a broader system that excludes at-risk and suffering communities from influencing nuclear compensation regimes in the US. Across numerous renewals, the legislative process has remained focused on industry participants, who possess money and power necessary to lobby successfully. Although NGOs have contributed periodically to legislative debates over the Price-Anderson regime, lawmakers have not solicited the views of those who know first-hand what it is like to experience nuclear harm or to attempt to make a claim. And under the existing insurance regime individuals can do nothing to protect themselves. To avoid being twice exposed for the same incident, insurers exclude nuclear damage from consumer policies.⁶⁰

The Price-Anderson regime, moreover, retains private insurers and federal courts as gatekeepers of US public liability claims. In 1990, the President’s Commission on Catastrophic Nuclear Accidents convened in the wake of the Chernobyl meltdown. The Commission’s final report urged Congress to consider adopting streamlined administrative settlement procedures for handling nuclear compensation.⁶¹ Shifting to an administrative regime in the case of massive disasters, the Commission felt, would lessen the

burdens on claimants in a variety of ways. It would speed up compensation, lower the burdens of claims-making, and potentially permit recovery for those unable to prove that their injuries were caused by radiation. Such regimes have far more flexibility than litigation to address suffering in line with the limits of radiobiological knowledge.⁶²

Administrative settlement schemes also have disadvantages, however, as Schmid and Suami et al. clearly demonstrate in this report. Eligibility criteria—whether based on a territorial/environmental exposure model or dose model—are almost always controversial. The resulting settlement regimes tend to overcompensate some sufferers whose illnesses were not likely caused by radiation, while undercompensating other sufferers whose illnesses were caused by radiation. Since settlement funds are always limited, this distributional issue can lead to serious injustices. Other problems arise from the definitions of harm. Not least, as Suami et al. demonstrate in the case of Fukushima, these regimes typically only cover conventional categories of injury, such as damage to persons and property. They do a poor job of recompensing the many and varied types of harm that persons and communities suffer in the wake of a nuclear disaster.

The US Congress ultimately failed to act on the Commission's recommendation to proactively institute an administrative settlement scheme that could apply in cases of catastrophic nuclear disasters. Over the intervening decades, the state of knowledge and experience about nuclear disaster and mass settlement has changed. It is now up to Congress or the courts to reexamine these issues or to try new approaches at a future date.

Most recently, amendments to the Price-Anderson regime have done little to address how future nuclear disasters will be bounded and compensation awarded, let alone to include suffering and at-risk communities in such discussions. In 2005, the US Congress extended the Price-Anderson Act through 2025, focusing its attention principally on increasing the amount of coverage afforded. Although the primary and secondary tiers of insurance under the Act now total over \$13 billion dollars, among the largest pools worldwide, the overall coverages pale in comparison to the full costs of a catastrophic disaster.⁶³ The Japanese government, for example, estimated in 2016 that the costs of Fukushima would exceed \$188 billion.⁶⁴ More recent estimates by the think tank Japan Center for Economic Research suggest that costs may run as high as \$315-\$728 billion.⁶⁵

As long as nuclear power provides a significant source of electricity, communities located near reactors will bear many of the risks of a

catastrophic meltdown. Yet they have little say in how they would be treated in seeking compensation after a disaster. Although lawmakers have thought long and hard about the solvency of energy and insurance companies, they have not fully considered claimants' experiences of being harmed and seeking compensation. When the Price-Anderson regime was initiated in the 1950s, it was not possible to ask victims of a civilian nuclear reactor meltdown about such experiences. There had been no meltdown because civilian power generating facilities did not yet exist. Today, as this report saliently demonstrates, communities worldwide have experience seeking compensation for nuclear harm across a range of compensation regimes. These suffering and at-risk communities should be brought to the table in a democratic, participatory, and anticipatory process—not after, but before the next disaster occurs.



1. For a detailed recounting of the incident, see Walker 2004. For a view of the incident's cultural and political impacts, see Zaretsky 2018
2. Walker 2004, 78-80
3. See Jan Beyea, *A Review of Dose Assessments at TMI and Recommendations for Future Research* (Three Mile Island Public Health Fund, 1984).
4. Walker 2004, 137
5. Walker 2004, 72-78; Nuclear Regulatory Commission, June 2018
6. See International Atomic Energy Agency Information Series, Division of Public Information, 08-26941/E, *International Nuclear and Radiological Event Scale*.
7. Hewlett and Holl 1989, 198-199; Mazuzan and Walker 1985, 18-31. On nuclear energy as a part of US international diplomacy, see also Krige 2006, 161-181
8. See, for example, *Atomic Power and Private Enterprise: Hearings Before the Joint Committee on Atomic Energy*, 82d Cong. 30-31 (1952) (statement of Edwin J. Putzell, Jr., Secretary, Monsanto Corporation); *Hearings to Amend the Atomic Energy Act of 1946: Hearings on S. 3323 and H.R. 8862 Before the Joint Committee on Atomic Energy* 334-35 (1954) (statement of Frank McCune, General Manager of Atomic Products Division, General Electric Company); *Governmental Indemnity for Private Licensees and AEC Contractors Against Reactor Hazards: Hearing Before the Joint Committee on Atomic Energy*, 84th Cong. 27-56 (1956) (statement of William Mitchell, General Counsel, AEC). See generally Butler 1959.
9. For an overview, see Mazuzan and Walker 1985, 113-117.

10. See *Governmental Indemnity for Private Licensees and AEC Contractors Against Reactor Hazards: Hearing Before the Joint Committee on Atomic Energy*, 84th Cong. 27-56 (1956) (statement of William Mitchell, General Counsel, AEC); Thomas 1958; Butler 1959
11. *Governmental Indemnity for Private Licensees and AEC Contractors Against Reactor Hazards: Hearing Before the Joint Committee on Atomic Energy*, 84th Cong. 33, 38, 56 (1956) (statement of Harold L. Price, Director of Regulation, AEC).
12. Mazuzan and Walker 1985, 203-208
13. For more on the development of nuclear insurance regimes in Europe, see Daston 2017
14. See, for example, Stason, Estep, and Pierce 1959, chapter 3.
15. Gourley et al. 1985, 113. Chub Wilcox served as lead counsel for defendants in the TMI personal injury cases.
16. Although some commentators favored the imposition of strict or absolute liability on operators, federal preemption of state tort law was not seen as a wise political move and it seemed unlikely that states would uniformly adopt such provisions on their own. See Walker and Mazuzan 1992, 135-36
17. In its implementing regulations, the AEC defined a substantial release of radiation as exposure of one or more persons offsite to a whole body or bone marrow dose of 20 rem, an organ or thyroid dose of 30 rem, or a skin dose of 60 rem. A release could also be deemed substantial if 100 square meters or more of offsite property were contaminated to specified levels. This included offsite contamination of property owned by third parties at levels of .35 microcuries per square meter of alpha emission from transuranic isotopes (practically speaking, this referred mostly to certain plutonium isotopes with exceptionally long half-lives), 3.5 microcuries per square meter of other alpha emission, or 4 millirads/hour at 1 cm² of beta or gamma emission. See 42 U.S.C. § 2210(n) (Supp. 1967). 10 C.F.R. § 140.84; Walker and Mazuzan 1992, 137-38
18. Under the regulations, damages were (and still are) considered to be “substantial” if an incident caused death or hospitalization of five or more people within thirty days. Alternatively, an incident could also be deemed substantial if it caused \$2.5 million in damage to one person or \$5 million in aggregate damages. Finally, damages would be substantial if they caused \$5,000 in damage to fifty or more persons, provided \$1 million or more of aggregate damages were likely to be sustained. 10 C.F.R. § 140.85; Walker and Mazuzan 1992, 137-38.
19. 42 U.S.C. § 2210(n) (Supp. 1967); Walker and Mazuzan 1992, 137-38
20. See *Carolina Environmental Study Group, Inc. v. AEC*, 431 F. Supp. 203 (W.D. N.C. 1978), *rev'd sub nom. Duke Power v. Carolina Environmental Study Group, Inc.*, 438 U.S. 59 (1978) (appealing directly to the Supreme Court).

21. *Duke Power*, 438 U.S. 59.
22. Gourley et al. 1985, 108-134 Claims data are presented in Table 1, 124-127.
23. Gourley et al. 1985, 110-112 A database search returned no published cases litigated to a verdict under the Price-Anderson Act between its inception and the TMI incident. This does not necessarily mean there was no litigation, however. Dropped or settled claims would not have resulted in a published decision. The data in Gourley et al., "The Nuclear Liability Claims Experience of the Nuclear Insurance Pools," Table 1, 124-127, do not identify claimants or facilities.
24. 85 Cong. Rec. 10,716 (daily ed. July 1, 1957); Butler 1959, 55-56
25. Walker 2004, 137
26. Rockett 1988, 28
27. Gourley et al. 1985, 119
28. Besides personal injury cases, the incident gave rise to a variety of corporate and municipal claims. The plant operator sued the plant designer, Babcock and Wilcox, claiming the company had failed to warn it of known valve defects. It alleged \$4 billion in damages for cleanup, reactivation, and lost revenues. Babcock and Wilcox settled the case in 1983, agreeing to give the operator \$37 million worth of rebates on future service and equipment purchases by the operator. See *General Public Utilities Corporation v. Babcock and Wilcox*, 547 F. Supp. 842 (S.D.N.Y. 1982); Prial 1982; Osif, Baratta, and Conkling 2004, 87 A group of the operator's shareholders also sued, arguing that the operator had concealed the true risks of building and operating nuclear plants. The operator settled the suit out of court in 1983. It agreed to pay back \$20 million in stock and securities to shareholders who had purchased operator stock prior to the incident. Osif, Baratta, and Conkling 2004, 87; Samson 1983 The State of Pennsylvania and local municipalities sued the operator separately for a variety of claims, including ones arising in public nuisance, for loss of revenues, and to recoup expenditures related to the disaster. See *Commonwealth of Pennsylvania v. General Public Utilities Corp.*, 710 F.2d 117 (1983) (later superseded by amendments to the Price-Anderson Act). In 1984, the insurers settled, paying \$250,000 to the state of Pennsylvania and \$235,000 to each municipality within a twenty-five-mile radius of the plant. Smith 2013, 22
29. Walker 2004, 205-207
30. In the Matter of Three Mile Island Unit 2, 11 NRC 519 (1980). See also *Report to the Regulatory Commission from the Staff Panel on the Commission's Determination of an Extraordinary Nuclear Occurrence* (Washington, DC: Nuclear Regulatory Commission, 1980).

31. See generally M. X. Mitchell, "The Cosmology of Evidence: Suffering, Science, and Biological Witness after Three Mile Island," *Journal of the History of Biology*, forthcoming.
32. Mitchell forthcoming
33. Mitchell forthcoming For a recounting of distrust sown by the TMI incident and citizens' activism in response see generally Walsh 1988
34. For an overview of the US government studies see *Report of the Public Health and Safety Task Force, Staff Report to the President's Commission on the Accident at Three Mile Island* (Washington, D.C.: US Government Printing Office, 1979).
35. Stipulation of Settlement and Agreement, In re Three Mile Island Litigation, Civ. No. 79-0432, February 17, 1981, Folder 14, Box 91, Series IV, Ruth Patrick Papers, Philadelphia Academy of Natural Sciences, Philadelphia, PA; Walsh 1988, 120-21
36. See In Re Three Mile Island, 87 F.R.D. 433, 440 (M.D. Pa. 1980).
37. Gourley et al. 1985, 120-21. This settlement did not limit the rights of individuals to sue for personal injuries.
38. For the report, see Beyea 1984
39. On citizen activism, see Walsh 1988; Zaretsky 2018, chapter 3
40. For a summary of these suits and events, see In re TMI, 193 F.3d 613, 624-26 (3d Cir. 1999). Plaintiffs selected Mississippi for its favorable statute of limitations.
41. In re TMI, 193 F.3d 613, 624-26 (3d Cir. 1999).
42. Reed and Herman 1989; Smith 2013, 22
43. *An Act to Amend the Price-Anderson Provisions of the Atomic Energy Act of 1954 to Extend and Improve the Provisions for Liability and Indemnification for Nuclear Accidents*, Pub. L. 100-408, 102 Stat. 1066. 20 Aug. 1988. With the Chernobyl disaster now also in view, Congress also concurrently raised the insurance coverages and called for a new study on catastrophic nuclear accidents. Amendments increased the amount of primary financial protection amount to \$200 million per reactor. It increased the retrospective premium to \$63 million per reactor and the maximum annual payment of retrospective premiums to \$10 million per year per reactor. This raised the total coverages to \$9.5 billion per incident. The amendments required an increase in assessments every five years tied to inflation. They also clarified that precautionary evacuations would be covered by the Act, that punitive damages would not be available in public liability claims, and that legal fees were to be covered out of the primary insurance. Ibid.
44. See In re TMI Cases Consol. II, 67 F.3d 1103, 1118 (3d Cir. 1995). The US Supreme Court's 1993 *Daubert* decision, 509 US 579 (1993), as interpreted by the Third Circuit

Court of Appeals in *In re Paoli Railroad PCB Litigation*, 35 F.3d 717 (3d Cir. 1994), governed the admission of expert evidence in the case.

45. The trial court seemed confused about the distinctions between exposure and dose and it and the parties tended to use the terms interchangeably. Exposure refers to radiation present in the environment and is often measured in Roentgen. Absorbed dose, in contrast, refers to the amount of radiation absorbed by a living being or an object. It is often measured in Radiation Absorbed Dose (rad) or Gray (Gy). Finally, effective dose combines the absorbed dose with measures of the harmfulness of particular kinds of radiation on the human body. It may be measured in Roentgen Equivalent Man (rem) or sievert (Sv). The court consistently referred to “exposure” but used a measure—rem—that referred to effective dose. It is likely the court wished to refer to the maximum possible effective dose—the same measure used by the interagency taskforce when it concluded that no harm had come to people in the region.
46. *In re TMI Litig. Consol.*, 927 F. Supp. 834, 865 (M.D. Pa. 1996).
47. See Federal Rule of Evidence 803(8)(c) (excepting US agency reports from the prohibition on admission of hearsay).
48. Mitchell forthcoming
49. Mitchell forthcoming
50. On practices of dose reconstruction, see especially Lindee 2016, 185-188
51. See *In re TMI*, 193 F.3d at 717-722.
52. For discussion of problems with the cytogenetic studies see *In re TMI*, 193 F.3d at 689-93.
53. For discussion of problems with the immunological analysis see *In re TMI*, 193 F.3d at 697-98.
54. See *In re TMI*, 193 F.3d at 717-723.
55. See *In re TMI II*, 911 F.Supp. 775 (M.D. Pa. 1996), *aff’d in part* 193 F.3d 613 (3d Cir. 1999).
56. *In re TMI II*, 193 F.3d 613.
57. Although the Court of Appeals upheld the District Court's summary judgment, it also held that the District Court had erred in finding summary judgment applied to all the remaining plaintiffs beyond those whose claims had been chosen as test cases. The Third Circuit held that plaintiffs who were not a part of the test claims could still proceed with trial seeking to prove that exposure below 10 rem had caused their injuries. It remanded roughly 1,990 claims for trial. In doing so, however, the court also noted that discovery period had closed. *In re TMI*, 193 F.3d at

726-729. On remand, the remaining plaintiffs attempted to reopen discovery since all of their previously introduced expert testimony had used the 10 rem floor as the basis for claiming causation. The District Court rejected the plaintiffs' motion and granted summary judgment in favor of the defendants. The Third Circuit Court of Appeals upheld the District Court's grant of summary judgment in December of 2002. 53 Fed. Appx. 648 (3d Cir. 2002).

58. Walker 2004, 230; Smith 2013, 22-23
59. Walker 2004, 230; Smith 2013, 22-23
60. Butler 1959, 33; McClure 1968, 260-62
61. Curiously, although the Commission heard experts' testimony about a variety of mass disasters and settlement schemes—nuclear and non-nuclear—it did not once call a claimant or sufferer to talk about her experiences. See President's Commission on Catastrophic Nuclear Accidents, Hearings, Containers 1-2, RG220 Temporary Committees, Commissions, and Boards, National Archives and Records Administration II, College Park, MD.
62. For the final report and recommendations, see *Report to the Congress from the Presidential Commission on Catastrophic Nuclear Accidents* (Washington, D.C.: Presidential Commission on Catastrophic Nuclear Accidents, 1990).
63. Nuclear Regulatory Commission, January 2018
64. Obayashi and Hamada 2016
65. Kumori 2019

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Nuclear Liability and Compensation Models after Chernobyl

Sonja D. Schmid

INTRODUCTION

More than 30 years after the Chernobyl disaster, debates over radioactive contamination of land and human bodies are ongoing; in particular, debates regarding the question of how individual states and the international community should handle the disaster's legacy. The questions guiding this chapter emerged from discussions with nuclear professionals, lawyers, and social scientists in the aftermath of the Fukushima disaster, which, 25 years after Chernobyl, raised very similar issues: Who is, or should be, classified as a victim? What counts as damage? Who is responsible for compensation? These questions had been addressed before, in one way or another, but without having yielded "lessons learned," let alone a set of consolidated guidelines. Too strong was the desire to brand Chernobyl as a "one-off," something that would never happen again. This chapter tries to reconstruct where the post-Chernobyl debates came down on these questions and, more specifically, what model(s) were used to compensate victims.

The Soviet case is also a post-Soviet case, as the state in charge of the Soviet nuclear industry, including the Chernobyl nuclear power plant (NPP), ceased to exist in December 1991: five years after the worst nuclear accident at a commercial nuclear facility, multiple successor states inherited the disaster's legacy. This chapter, then, attempts more than simply to reconstruct "the Soviet response." I have narrowed my analysis to the three Soviet successor states that were left with most of the contaminated territory, quantitatively and qualitatively, as well as most of the affected population. It is worth mentioning, though, that the Chernobyl mitigation work drew on professionals from the entire Soviet Union, and many "liquidators," those who assisted in the emergency response operations on site, came from places across the vast Soviet lands.

Furthermore, in the process of creating compensation schemes for all of these liquidators, others who had suffered from radioactive fallout or had lived in contaminated territories also laid claim to nuclear victimhood. Different from the American, and to some extent Japanese, situations, Soviet and post-Soviet citizens rarely went to court—they relied on administrative settlement processes, even where distrust in the government was high. The post-Soviet period also witnessed a new wave of legal frameworks, both nationally and internationally, where Russia, Ukraine, and Belarus developed their own laws covering nuclear liability, and joined international conventions. All such frameworks typically cap financial responsibility, and carve out certain limitations of liability, e.g., in case of a natural disaster, war, or a terrorist attack.

It is not easy to find information on the legal status of nuclear installations during Soviet times, as this country no longer exists and most of its successor states have either joined international conventions or treaties, or otherwise adopted policies much more similar to US and/or European legal frameworks. I focus on Russia, Ukraine, and Belarus, which are the three states most severely affected by the fallout from Chernobyl, and the way these states modified or clarified policies taken during Soviet times and since the USSR disintegrated at the end of 1991. Among the sources I consulted are actual laws, international treaties and agreements, or references to them, as well as secondary resources in Russian- and English-language law journals.¹

In a nutshell, the compensation scheme implemented in the wake of the Chernobyl disaster in the Soviet Union fell back on compensation and social benefits frameworks well established in areas of civil law, such as social benefits for war veterans, low-income families, the elderly, disabled people,

etc. The first comprehensive legal framework on Chernobyl was not articulated until 1991, and the law passed at that time has since been modified and updated multiple times to accommodate challenges to it, but also to reflect the fundamental changes affecting the political order and socio-economic situation in the successor states of the USSR. The first part of this chapter chronicles the main efforts to establish a legal framework for compensating individuals affected by the Chernobyl accident. The second part goes into some detail on definitions and differentiations that emerged as particularly problematic in the process of implementing the initial framework, as a result of challenges by both individual citizens and organizations, and of the Soviet Union's successor states trying to adopt or conform to existing international legislation on nuclear liability. In conclusion, I return to the fundamental questions this chapter seeks to address in the light of this history and definitional and practical challenges: who is a victim, what counts as damage, and who is responsible for compensation? As an appendix, I list the major decrees and laws discussed here.

CHRONOLOGY OF LEGAL EFFORTS TO DEAL WITH CHERNOBYL'S AFTERMATH

When Chernobyl happened in April of 1986, the “method of compensating for radiation damage in the form of compensations and benefits for harm to property and health of the victims was not known to the acting legislature.”² Alla Yaroshinksaya, an energetic politician and activist, writes that in 1986, “NOT A SINGLE legislative act existed in the USSR that could protect victims of possible nuclear accidents and incidents.”³ One legal scholar concluded that, in fact, despite its military and peaceful nuclear programs, “the USSR was the only nuclear country in the world without its own laws regulating the use of nuclear energy and its safety,”⁴ in contrast to the US, France, or Britain. This may be the case as it relates to liability laws, but the nuclear industry did in fact develop its own internal safety regulations as early as 1957.⁵ Back then, they modeled regulations for the anticipated fleet of nuclear power plants on those already in force for conventional power plants. Nuclear industry regulations focused primarily on the construction and operation of nuclear power plants, whereas rules relating to guaranteeing the safety of the nuclear fuel cycle remained the task of a secret ministry, the Ministry of Medium Machine Building, which was also in charge of the Soviet nuclear weapons program.

The issue of harmonizing Soviet nuclear safety laws with international regulations was raised in the early 1970s and resulted in a regulatory document, OPB-73, in 1974.⁶ However, this document focused on design, construction, and operation of nuclear power plants, not on severe accident mitigation or compensation. The first independent nuclear oversight committee was created only in 1983, and even then Soviet nuclear safety regulation relied on oversight and supervision, not licensing and setting norms. After the Three Mile Island accident, Soviet specialists revised the initial nuclear safety document, and although the new legislative document OPB-82 was submitted in 1984, it was not approved, let alone implemented, in time to prevent Chernobyl. This meant that after the disaster, there was no legal basis on which affected individuals could demand legal settlement from the government.⁷ What did exist at the time of the Chernobyl disaster was legislation on social benefits and (financial and other) compensation, including “benefits and payments for war veterans, disabled persons and pregnant women, among others.”⁸ These civil laws became the model for crafting a Chernobyl compensation legal framework.

1986-1991: IMMEDIATE POST-CHERNOBYL LEGISLATION

The first legal action after the April 1986 disaster was the adoption of a joint decree of the Communist Party's Central Committee and the Council of Ministers of the USSR, which back then was the usual mechanism for government decision-making. The decree was adopted 12 days after the accident, on May 7, 1986, “On terms of payment and material provision of employees of enterprises and organizations in the Chernobyl nuclear power plant zone.” According to legal scholar Milan Zgiersky, it became “the first document regulating the relations between the USSR government and the Chernobyl NPP.”⁹ A number of other such joint decrees were issued, and to some extent implemented, in the years following the accident.¹⁰

By 1990, a year before the Soviet Union fell apart, three different, independent programs were put in place: a Ukrainian program, a Belarusian program, and one for a single region (Bryansk) in Russia.¹¹ These programs were based on two approaches to mitigate the consequences of the Chernobyl disaster: one focused on the decontamination of territories, the other on social protection, where the latter supplemented the former. Privileges and compensations were determined according to the levels of radioactive contamination in the territories. The amounts of compensations

and premiums were based on different principles in the laws of Russia, Ukraine, and Belarus. In Russia, it was linked to the minimum wage, in Ukraine it was based on a person's base salary, and in Belarus it was a monthly premium based on a specific indexation. Other privileges and compensations were similar across the three states, with Ukraine establishing additional privileges and compensations for health care workers and educators.¹²

Only on April 25, 1990, four years after the accident, and at least in part as a consequence of public hearings about the accident, a Government Expert Commission elaborated, and the Supreme Soviet of the USSR adopted, the first Union-wide, comprehensive legal program on the "Liquidation of the Consequences of the Chernobyl Disaster."¹³ This program put the Soviet Council of Ministers in charge of drafting an actual "Law on the Chernobyl Catastrophe" by the end of the year 1990, in which the legal status of disaster victims was to be clearly defined (both participants in the mitigation work and evacuees), the legal status of the disaster area was to be determined, and all activities related to residence, activities, and state administrative bodies in the affected areas were to be regulated.¹⁴

It took until almost five years after the disaster, 1991, for the Soviet Union to finally adopt "fully adequate legislative acts regulating the responsibility of the government for the damage inflicted to the citizens as a result of the activities of a nuclear enterprise."¹⁵ These laws were:

- ◆ the Law of Belarusian SSR "On the Social Protection of Citizens Affected by the Catastrophe at the Chernobyl NPP" from 12 February 1991
- ◆ the Law of the Ukrainian SSR "On the Status and Social Protection of Citizens Affected by the Accident at the Chernobyl NPP"
- ◆ the Law of Russian Federation "On the Social Protection of Citizens Affected by Radiation as a Consequence of the Accident at the Chernobyl NPP" from 15 May 1991, and
- ◆ the Federal Law "On the Social Protection of Citizens who Suffered as a Consequence of the Chernobyl Catastrophe" from 12 May 1991.

Zgiersky notes that these laws applied to the affected population and only indirectly addressed ecological problems: "However, in comparison to the legal vacuum that in fact existed during five years after Chernobyl, these laws were a significant step forward."¹⁶ These laws used the radiation dose with a threshold of average effective dose not to exceed 1 mSv (0.1 rem) per

year, as well as residence in contaminated territories for defined periods, as the main criteria for deciding about protective measures, benefits, and compensation for damages to the population.¹⁷ The above-mentioned Federal Law from May 1991 featured the exact “system of social guarantees,” differentiating twelve categories of citizens entitled to compensation and benefits, and setting compensation rates. Yaroshinskaya writes, however, that the law was inefficient as compensation payments were concerned, and was modified for the first time in June 1992 and many more times since then.

THE CHERNOBYL LAW AND THE 1990S ECONOMIC CRISIS: POST-SOVIET CHALLENGES TO THE NUCLEAR LEGAL FRAMEWORK

The adoption of actual laws on compensation for people affected by the Chernobyl catastrophe coincided with a severe economic crisis in the former Soviet Union, and was followed by the disintegration of the entire political system of the region.¹⁸ This meant not only that compensation payments were delayed, irregular, or partial because the authorities had no funds from which to pay out compensation, but also that many of the benefits set up for the social and economic system of the Soviet Union (free public transport, assigned government housing, access to free quality health care, etc.) were either no longer available or had lost their value.

In addition to the economic recession, Yaroshinskaya points out severe problems with corruption. For example, the first attempt to collect money to assist Chernobyl victims, still in Soviet times, was the so-called Special Chernobyl Account #904, set up by the Soviet government. As it became known subsequently, the government embezzled the funds to fly in paid consultants who penned dubious reports about the radiological situation in the affected territories.¹⁹ Other instances of corruption involved the blatant misuse by local authorities of funds allocated to resettlement or decontamination work. Overall, with declining government investments, many of the planned projects were left unfinished, forcing some of the evacuated population to return to “dirty” territories for job opportunities.²⁰ As a result of these economic challenges and rampant corruption, the Chernobyl Laws were often left unclaimed, and “millions of people are suffering in the affected territories under conditions that protection measures for the environment are not carried out in necessary scales, and the ecosystems are not rehabilitated to the full extent.”²¹

Apparently as a direct consequence of creating a legal framework for compensating nuclear disaster victims, public debate challenged how these laws applied only to those affected by Chernobyl. In the following years, the laws were amended to include victims of other incidences of fallout, most prominently the population near the nuclear test site at Semipalatinsk in Kazakhstan where the Soviet Union had conducted a large number of above- and below-ground nuclear weapons tests. The other prominent site that claimed the status of “affected population” under the Chernobyl laws were those living in the area of Cheliabinsk, in the Russian Urals. Home to the Soviet Union’s most important plutonium manufacturing facility, as well as other facilities devoted to the most toxic parts of the nuclear fuel cycle (reprocessing, storage), this area had experienced massive radioactive contamination over the course of its history. For example, the first Soviet plutonium producing reactors there were cooled with water from the Techa river, and after passing through the core, that water had been released back into the river; radioactive waste had also been dumped in that same river, in most cases without informing the affected local population (historian Kate Brown has documented the largely unsuccessful resettlement and decontamination efforts there in her 2013 book *Plutopia*). In the period after Chernobyl, but before the disintegration of the Soviet Union, another serious accident that had been classified as secret at the time, came to light: in 1957, a nuclear waste storage facility near Cheliabinsk had exploded, showering the area with radioactive debris.²² The local population, at the time left ignorant, learned about the causes of their various illnesses during the early 1990s and successfully mounted a challenge to be considered as “individuals affected by nuclear accidents,” with grave consequences for the emerging post-Chernobyl legal framework.²³

At the same time as some tried to expand the Chernobyl legislation, others criticized it. The central point of criticism became the problem of dose evaluation, which the entire system was based upon: “how to evaluate delivered dose, as well as to determine the consequences, in consideration of peculiarities of release and migration of radionuclides, irradiation duration, dose rate, etc.”²⁴ Zgersky argues that the original Chernobyl legislation relied on imperfect underlying dose estimates that neglected the following complicating factors:²⁵

- ◆ the radiation risk to the population may vary greatly
- ◆ calculating *averages* misses the wide variation in exposure, especially when based on infrequent monitoring²⁶
- ◆

the existing dosimetric and epidemiological data is insufficient to specify dose distribution, or biological effects, to name but a few factors

- ◆ humans vary in their sensitivity to radiation.

Similarly, and as will be discussed in more detail below, this “dose approach” replaced the “aerial [or territorial] approach,” both of which relied on ill-defined terms and concepts that did not take into account the complexity of how radioactive isotopes decay, move, and change properties depending on their location.

Given these problems with defining the scope of the population entitled to compensation under the new laws, it is not surprising that in the mid-1990s, members of the Russian parliament (the Duma) were trying to reduce the privileges for affected citizens, resulting in a struggle between the parliament and the President of the Russian Federation; the aforementioned definitional problems were at the core of this struggle, which ended without resolution. According to Zgersky, the struggle boiled down to the “question about the criteria that should be the basis to provide privileges to inhabitants living in the contaminated territories, the level of soil contamination or the value of irradiation dose.”²⁷ Below, I briefly recount the original territorial organization of affected areas, and how this classification varied as early as 1991 and 1992 among the three republics most affected by fallout from the Chernobyl disaster. I’ve also tried to summarize these differences in a preliminary table that compares criteria and levels of contamination (Table 1).

RUSSIA

In Russia, initially only one region around Bryansk was singled out as “affected” by Chernobyl-related radioactive contamination, though it became known only years after the accident that as many as 16 additional regions within the Russian Federation suffered from fallout-related ecological problems.²⁸ A government decree from December 25, 1992, “On the Regime of Territories Exposed to Radioactive Contamination in Consequence of the Accident at the Chernobyl NPP,” following a special article of the Law “On Social Protection of Citizens...” (from 15 May 1991), defined different zones and how they should be governed (the description below closely follows Zgersky’s analysis).²⁹ In Russia, four zones were defined, with boundaries that could be revisited once every five years:

1. The restricted zone. This was the 30-kilometer zone around the NPP that authorities first set up in 1986-1987, which was later referred to as the evacuation zone from 1988 until the adoption of the 1991 Law. The population was evacuated from these territories in 1986 and in subsequent years.
2. The resettlement zone. This was the part of the territory of the Russian Federation outside the restricted zone (Table 1), which was also evacuated. It was defined based on soil contamination density by caesium-137, strontium-90, plutonium-239 or plutonium-240 (for threshold values please refer to Table 1).
3. The residence zone with the right for resettlement. This zone, outside the restricted and the resettlement zones, was also determined based on the density of soil contamination with long-lived radionuclides (below the limits set for the resettlement zone).
4. The residence zone with privileged socio-economic status. Not subject to evacuation or resettlement, people living in this part of the territory of the Russian Federation were considered entitled to special benefits as a result of measurable radioactive soil contamination density.

UKRAINE

The legal status of contaminated territories in the Ukraine followed a similar model as in Russia, dividing them into zones:³⁰

1. The restricted zone. The area from which residents were evacuated in 1986.
2. The zone of mandatory resettlement. This was a territory intensely contaminated with long-lived radionuclides, and—here is one difference with the Russian system—where the individual effective equivalent radiation dose was calculated as being 0.5 rem/year (or 5 mSv/year) higher than the pre-accident dose.
3. The zone of guaranteed voluntary resettlement. Individuals living in this zone were entitled, but not forced, to resettle; again, the demarcation follows soil contamination density and a calculated individual effective equivalent radiation dose of 0.1 rem/year (or 1 mSv/year) above the pre-accident dose.

4. The zone of intensified radio-ecological control. This was a territory delineated by soil contamination density and a calculated individual effective equivalent radiation dose of 0.05 rem/year (or 0.5 mSv/year) in excess of the pre-accident dose. People living in this zone were not subject to evacuation or mandatory resettlement, but to increased dose monitoring.

It is important to note that Ukraine declared independence in 1991, and defining territories and populations affected by Chernobyl became a crucial part of defining the new nation state. This process allowed Ukrainian leaders to castigate Soviet mismanagement of safety in the nuclear industry, and to demonstrate a responsive, responsible Ukrainian government assisting those affected by the catastrophe.³¹ "Ukraine has used the legacy of Chernobyl as a means of signaling its domestic and international legitimacy and staking territorial claims. ... Ukraine's response to the Chernobyl legacy is unique in that it combines humanism with strategies of governance and state building, market strategies with forms of economic and political corruption."³² As a consequence, Ukraine's social welfare system expanded in the years following independence, which ran counter to Western prescriptions for a smooth transition to market economics.³³

BELARUS

The Republic of Belarus, after declaring independence in August of 1991, adopted its own special law, "On the Legal Regime of Territories Exposed to Radioactive Contamination as a Consequence of the Catastrophe at the Chernobyl NPP," on November 12, 1991. The law was intended to ameliorate the impact of radioactive contamination on the population and ecosystems, by instituting measures to recover and protect the environment. As in Russia and Ukraine, the law regulates the regime of residence, as well as economic and scientific activities in these territories. Zgersky notes that the division into zones in Belarus differs from Ukraine and Russia, and is based fundamentally on the damage inflicted by radiation on the public.

1. Zone of evacuation (restricted zone). This is the territory around the Chernobyl NPP, from which the population was evacuated in 1986, the 30-kilometer zone around the plant and additional lands contaminated by strontium-90 (exceeding 3 Ci/km²) and plutonium-238, 239, 240, and 241 exceeding 0.1 Ci/km². It is notable that these values are significantly higher than in Russia or Ukraine.

2. First priority resettlement zone. This is territory with extreme soil contamination density that neither Russia nor Ukraine had to consider.³⁴ The fact that this zone is not labeled a “mandatory evacuation zone” or similar indicates not only what later became clear, namely the inability of the state to live up to its compensation promises, but also a tendency in Belarus specifically to downplay and even deny radioactive contamination effects on its territory and population.³⁵
3. Zone of subsequent resettlement. This is a territory with a soil contamination density similar to the “mandatory resettlement” zone in Ukraine and the “resettlement zone” in Russia, but based primarily on average individual effective doses of 0.5 rem/year (5 mSv/year) or higher—even where soil contamination levels were lower.
4. Zone with the right for resettlement. This is all territory where the average individual effective equivalent dose exceeds 0.1 rem/year (or 1 mSv), with or without radioactive soil contamination.
5. Zone of residence with recurring radiation control. All territories where the average individual effective equivalent dose may not exceed 0.1 rem/year (or 1 mSv/year), with or without radioactive soil contamination.

Petryna notes that although 23% of the territory of Belarus was considered contaminated as a result of Chernobyl, the Belarusian government “has tended to suppress or ignore scientific research; it downplays the extent of the disaster and fails to provide enough funds for the medical surveillance of nearly two million people who live in contaminated areas.”³⁶

Table 1: Comparative Chart of Categories Used to Determine Affected “Zones”

Russia	Ukraine	Belarus
Restricted zone (also called evacuation zone) where population has been evacuated from according to the norms of radiation safety in 1986 and in subsequent years	Restricted zone (evacuated in 1986)	Zone of evacuation (restricted zone) Soil contamination of Sr-90 >3 Ci/km ² and Pu-238, 239, 240, 241 >0.1 Ci/km ²

Russia	Ukraine	Belarus
		First priority resettlement zone Soil contamination of Cs-137 > 40 Ci/km ² , Sr-90 >3 Ci/km ² , or Pu-238, 239, 240, 241 >0.1 Ci/km ²
Resettlement zone (outside restricted zone) Soil contamination of Cs-137 >15 Ci/km ² , or Sr-90 >3 Ci/km ² , or Pu-239, 240 >0.1 Ci/km ²	Zone of obligatory resettlement Soil contamination of Cs >15 Ci/km ² or Sr >3 Ci/km ² or Pu >0.1 Ci/km ² and higher AND Individual effective dose >0.5rem/yr greater than pre-accident dose	Subsequent resettlement zone Soil contamination of Cs-137 15-40 Ci/km ² , or Sr-90 0-3 Ci/km ² , or Pu-238, 239,240, 241 0.05-0.1 Ci/km ² AND/OR Individual effective dose >0.5 rem/yr
Residence zone with right for resettlement Soil contamination of Cs-137 5 to 15 Ci/km ² and other long-lived radionuclide contamination	Zone of voluntary resettlement Soil contamination of Cs 5 to 15 Ci/km ² , or Sr 0.15 to 3 Ci/km ² , or Pu 0.0.1 to 0.1 Ci/km ² AND Individual effective dose >0.1 rem/yr greater than pre-accident dose	Zone with right for resettlement Individual effective dose >0.1 rem/yr AND/OR Soil contamination of Cs-137 5-15 Ci/km ² , or Sr-90 0.5-2 Ci/km ² , or Pu-238, 239, 240, 241 0.02-0.05 Ci/km ²
Residence zone with privileged social-economic status Soil contamination of Cs-137 from 1 to 5 Ci/km ²	Zone of intensified radio-ecological control Soil contamination of Cs 1 to 5 Ci/km ² , or Sr 0.02 to 0.15 Ci/km ² , or Pu 0.005 to 0.01 Ci/km ² AND Individual effective dose >0.05 rem/yr greater than pre-accident dose	Zone of residence with recurring radiation control Individual effective dose may not exceed 0.1 rem/yr AND/OR Soil contamination of Cs-137 1-5 Ci/km ² , or Sr-90 0.15-0.5 Ci/km ² , or Pu-238, 239, 240, 241 0.01-0.02 Ci/km ²

POST-SOVIET DEVELOPMENTS: HARMONIZING WITH INTERNATIONAL NUCLEAR LIABILITY LAWS

The Soviet Union did not pay any compensation for trans-border loss or harm caused by the Chernobyl accident, nor did any of its successor states, which it justified with the fact that the Soviet Union had not been party to any international convention that would have held it responsible.³⁷ This was also the conclusion reached by European countries and their legal advisors when it came to deciding whether or not to demand state level compensation from the Soviet Union for the contamination of territories beyond the boundaries of the USSR.

Anisimov and Ryzhenkov point out that environmental law and human rights legislation developed only gradually in the post-Soviet space. They

argue that while environmental laws did exist in the Soviet Union, “they were either declarative...or referred to the protection of certain [specific] natural resources (land, water, forests, etc.) and complexes (reserves, natural monuments, etc.)”³⁸ Given the complex relationship between contaminated territories and affected populations, the authors propose an interesting connection between environmental liability and human rights, invoking “environmental refugees,” a term coined in 1985 (prior to Chernobyl), as a possible label for those forced to resettle as a result of the Chernobyl disaster, a point I will return to in the conclusion.

The abovementioned difficulties of post-Soviet states to effectively compensate citizens affected by Chernobyl—including the financial crisis, corruption, and the overall decline of organized governance in the disintegrating Soviet Union, came to a head in 2000. One citizen, A. T. Burdov, filed a complaint with the European Court of Human Rights (ECtHR) “in accordance with Article 34 of the European Convention on Human Rights.”³⁹ The ECtHR issued a pilot judgment of *Burdov (No. 2) v Russia* in 2009, effectively requiring the Russian Federation to adopt a legal remedy, which was created in 2010. “The judicial precedence thus established led to mass appeals by citizens affected by the Chernobyl accident to the ECtHR.”⁴⁰ The matters concerned compensation payments, the privileged allocation of residential premises, pension provision, targeted social assistance etc.

Also at least indirectly as a consequence of the ECtHR ruling, the Russian Constitutional Court in 2002 established that “the state is not entitled to refer to a lack of funds as the reason for non-payment of the debt.”⁴¹ Of course, it is also safe to assume that this did not change the reality of citizens not receiving their full compensation payments on time, or on a regular basis.

DEFINITIONS AND DIFFERENTIATIONS

The emerging legal frameworks in the post-Soviet space considered two kinds of measures: territorial decontamination and rehabilitation on the one hand, and social benefits such as access to “clean ” food, new living space, public transport, health care, scholarships etc., and compensation for harm to health and/or loss of income on the other.⁴² In addition to public works projects to construct new housing and infrastructure such as hospitals, schools, and nurseries, a “National Radiation and Epidemiological Registry” and the “Russian Medico-Dosimetric Registry” with regional branches were set up to contain “information on more than 600,000 people.”⁴³ While none

of these measures were expected to last longer than a few years, the authorities soon found that the changes in both the radiation and the socio-economic situation necessitated continued “modifications and additions to the existing normative and legal basis” even beyond the year 2000.⁴⁴

Because the Soviet state owned the Chernobyl nuclear plant, it was considered “the cause of the harm” and the Chernobyl legislation would go on to feature a number of similarities to existing laws meant to care for citizens:

*The State as the constitutional guarantor and owner of the nuclear power plant, and not the perpetrator of the damage, is responsible for the radiation damage done. The method of compensating for the radiation damage in the form of compensations and benefits for damage done, the [Chernobyl] law provides guarantees and benefits according to labor law, social security, tenancy and tax law, protection of health and environment and other measures required for the victims to lead a normal life.*⁴⁵

The norms of the social security law were designed to help the elderly, the disabled, households who had lost the main breadwinner, the unemployed, families with children, and individuals with income below the poverty line, and provided free medical care, free social services, and some other privileges, including educational benefits for children. Both the Chernobyl legislation and the social security law similarly concern somewhat “incapacitated citizens,” are mandatory, feature similar periods of validity, and share certain procedural relations. In summary, “[t]he legal relations between the victims and the State according to the law are similar to the alimentary character of the social security norms, and the government is responsible for providing the appropriate benefits and compensations.”⁴⁶

The sources of the compensation are “special means provided in the federal budget, along with medical insurance and pension funds,” as well as workers’ compensation funds—all of which have been stretched thin in the years since the disaster.⁴⁷ Important differences between the Chernobyl law and social security law include that Chernobyl compensation is also paid to healthy people who are not incapacitated but who had to evacuate as a result of the accident. These individuals obtain “benefits and compensation for actual or possible harm to their health.”⁴⁸

As can be seen from the establishment of evacuation zones, the “aerial [territorial] approach” dominated early Chernobyl legislation. And yet, it soon became clear that this approach could not adequately handle individual exposure to radiation, in part because the soil contamination was

not the only factor determining effective dose. Gerasimova writes, for example, that in 1996, the threshold for intervention was set at extra exposure dose above 1 mSv/yr, but that this threshold was actually in conflict with the earlier law from 1991, which took surface contamination with cesium 137 as the criterion to decide about mandatory implementation of rehabilitation measures.⁴⁹ These conflicting concepts constitute “a serious obstacle for completing the elimination of accidents consequences in the territories of the greater part of contaminated regions.”⁵⁰ Furthermore, both approaches, the aerial and the dose approach, required constant, comprehensive, and reliable monitoring, which was nearly impossible given the lack of infrastructure and personnel, and due to the difficulty of tracking the transient population of those subject to resettlement. Indeed, people rarely stayed where they were resettled to, especially given the challenges of finding jobs in their new environments.

CONCLUSION

This chapter has touched on the many nuances of nuclear liability that have come to light in the post-Chernobyl period. The disaster's occurrence at a time of extraordinary economic, political, and social turmoil contributed to the confusion of the legal framework that may have worked out very differently had, for example, the Soviet system persisted longer. Many of the benefits, privileges, and compensation alike might have been enough in a system with full employment, state-owned housing, state-run medical and educational systems, and a controlled currency. The simultaneous transition to separate nation states, a market economy, and a democratic political system made many of the benefits originally granted to “affected citizens” irrelevant or useless; the economic crisis caused states to cut expensive resettlement projects, decontamination and recovery activities, and medical as well as territorial monitoring for radiation.

As a consequence, the one factor already hardest to quantify in the process, that of socio-psychological trauma, was probably amplified and exacerbated in the process. Gerasimova wrote in 2002 that the socio-psychological factor was “characteristic of any extreme situation. It should be noted that in the case of radiation accidents the unfavorable psychological effect was severely aggravated by insufficient and sometimes distorted information on [the] actual radiation situation and possible radiation impact upon human health.”⁵¹ The newly uncensored press in the post-Chernobyl period, with its myriad voices, cannot but have confused Soviet citizens who for over 70 years were used to *one* version of the news, however doubtful and tainted.

Coupled with the invisibility of radiation and the elusive character of epidemiological causation, the psychological side of this disaster and its traumatizing effect on generations of newly independent, formerly Soviet, citizens, is completely missing from the literature and, at least so far, from the legal stage.

Several legal authors consulted for this report took the compensation paid out after Fukushima as a watershed moment to conclude that “the economic losses as a result of a nuclear incident may be not only huge, but extraordinary.”⁵² Kozheurov concludes that the sums paid out by the Japanese government and TEPCO as compensation for an accident that, at least officially, had only 1/6 of the radioactive emissions of Chernobyl demonstrate that the amounts currently set aside for severe accident compensation—not mitigation, just compensation—are clearly insufficient.”⁵³ As a consequence, if the extent of nuclear harm may amount to several times the sums established in the Vienna Convention, the main burden for compensation (and mitigation) will rest on the state, regardless of who owns a nuclear power plant.⁵⁴

Returning to the initial question of what compensation scheme the Soviet government modeled its post-Soviet nuclear liability framework on, we can see that any post-Chernobyl compensation was based on privileged access to a state-controlled system of housing, medical care, education, transportation, and other social services, similar in most ways to existing social security law. However, the overall framework for this system collapsed at the same historical moment as the Soviet state finally articulated a legal framework for post-Chernobyl nuclear compensation.

Furthermore, the criteria established to determine who counted as “affected” by the consequences of Chernobyl proved to be preliminary, changing, and contestable, both within and beyond the Soviet Union's socio-economic framework. Aerial monitoring of territorial contamination levels required tools, labor, and scientific expenditure that existed perhaps only on paper, and that was even more true for monitoring dose rates and systematically cataloguing health effects. The initial attempts to cover up the disaster and to falsify records crippled many later efforts to calculate averages, which in turn turned out to be problematic. Tensions and contradictions between laws such as the above-mentioned territorial versus dose criteria were no doubt used to justify inaction, but they also ironically made it possible for affected citizens to plead (literally) refugee status in the ECtHR.

In this context, Anisimov and Ryzhenkov propose an update of the 1951 Refugee Convention and wish to expand it to “ecological disaster zones” that so far lack a clear legal status, not to mention “a detailed plan of measures for restoration of the destroyed ecological systems.”⁵⁵ They argue that a nuclear disaster exceeds the authority of disaster response authorities (e.g., the Russian Ministry for Extreme Events, EMERCOM) and that territories affected by radioactive contamination should be legally treated as “ecological disaster zones” with uninhabitable environments that transcend EMERCOM’s responsibility and capability, and that produce “environmental refugees.”⁵⁶

To conclude, evidence from the Chernobyl nuclear catastrophe suggests that nuclear liability is at best an emerging area, and that the financial resources set aside to assist a population in case of a severe nuclear accident is likely to be a drop in the ocean in terms of what will be needed to reliably scrutinize and remedy territorial contamination, and to monitor and ameliorate health effects. This raises disconcerting questions about the economic feasibility of nuclear energy. Ultimately, a “one-size-fits-all” legal framework for compensation in case of a severe nuclear accident may run the risk not only of justifying an industry too expensive to operate, but also of setting parameters too rigid to allow for the uncertainties of what is known, how it is known, and how it can possibly be governed, both within individual states and across borders.



LIST OF MAJOR DECREES AND LAWS

USSR

Law of the Russian Federation from 15 May 1991, No. 1244-I, “On the Social Protection of Citizens Affected by Radiation as a Consequence of the Catastrophe at the Chernobyl Nuclear Power Plant” (Закон РФ от 15 мая 1991 г. N 1244-I “О социальной защите граждан, подвергшихся воздействию радиации вследствие катастрофы на Чернобыльской АЭС”).

Government Decree from 25 December 1992, “On the Governance of Territories Exposed to Radioactive Contamination as a Consequence of the Accident at the Chernobyl NPP.”

Ukraine

Law of Ukraine from 19 December 1991, No. 2001-12, “On the Status and Social Protection of Citizens who Suffered as a Result of the Chernobyl Catastrophe” (Закон Украины “О статусе и социальной защите граждан, пострадавших в результате черновыльской катастрофы”).

Kazakhstan

Law of the Republic of Kazakhstan from 18 December 1992, No. 1787-XII, “On the Social Protection of Citizens who Suffered as a Result of the nuclear tests at the Semipalatinsk Nuclear Testing Site” (“Закон Республики Казахстан “О социальной защите граждан, пострадавших вследствие ядерных испытаний на Семипалатинском испытательном ядерном полигоне”).

Belarus

Law of the Belarusian Republic from 22 February 1991, No. 635-XII, “On the Social Protection of Citizens who Suffered from the Catastrophe at the Chernobyl Nuclear Power Plant” (Закон Республики Беларусь “О социальной защите граждан, пострадавших от катастрофы на Чернобыльской АЭС”).

Russia

Law of the Russian Federation from 12 July 1995, “On the Social Protection of Citizens Affected by Radiation as a Consequence of the Catastrophe at the Chernobyl Nuclear Power Plant” (Закон РФ “О социальной защите граждан, подвергшихся воздействию радиации вследствие катастрофы на Чернобыльской АЭС”).



1. I also interviewed a Ukrainian civil servant who used to work in the nuclear industry and later transferred into the Ukrainian government apparatus, and who was involved with Chernobyl compensation issues both personally and from a policy-maker's standpoint, to correct and clarify my conclusions.
2. Bychkova 1999, 526 Bychkova even claims that as late as 1999, despite the programs since designed to assist victims of the disaster, “there are no laws in current legislation that regulate the responsibility for injury caused by a nuclear accident.”

3. Emphasis in original. Yaroshinskaya 1998, 257
4. Zgersky 1998, 266
5. Schmid 2015, 43
6. Anisimov, Pavlovich, and Ryzhenkov 2016, 270
7. Zgersky 1998, 266
8. Anisimov, Pavlovich, and Ryzhenkov 2016, 274
9. Zgersky 1998, 266
10. Yaroshinskaya 1998, 266 Yaroshinskaya claims that these decrees were secret, but at least general versions (possibly lacking some details) were in fact published at the time.
11. Yaroshinskaya 1998; Zgersky 1998 These laws were for the social-economic protection of the citizens of Russia ("On Social Protection of Citizens Affected by Radiation in Consequence of the Accident at the Chernobyl NPP"), of the Ukraine ("On Status and Social Protection of Citizens Affected by the Accident at the Chernobyl NPP"), and of Belarus ("On Social Protection of Citizens Affected by the Catastrophe at the Chernobyl NPP").
12. Zgersky 1998, 269 Zgersky notes that the amounts of compensations and premiums suggests that Russia put more emphasis on resettlement than Ukraine and Belarus.
13. Yaroshinskaya 1998, 258; Zgersky 1998, 266 The "Supreme Soviet" was the highest legislative authority in the USSR.
14. Zgersky 1998, 266-7
15. Zgersky 1998, 267
16. Zgersky 1998, 267
17. Yaroshinskaya 1998, 258
18. Anisimov, Pavlovich, and Ryzhenkov 2016, 275; Yaroshinskaya 1998, 260
19. Yaroshinskaya 1998, 262
20. Gerasimova 2002, 262 Gerasimova states that between 1992 and 1999, Russia spent the equivalent of two billion USD on various programs related to the Chernobyl disaster.
21. Zgersky 1998, 270
22. Anisimov, Pavlovich, and Ryzhenkov 2016, 275; Gerasimova 2002, 108

23. Zgersky 1998, 270 According to Zgersky, this “trend to spread the ‘Chernobyl law’ onto other regions of Russia that have been affected by radiation impacts” is problematic because “a direct application of the articles of the ‘Chernobyl Law’ for these situations is inadmissible.”
24. Zgersky 1998, 269
25. Zgersky 1998, 269-70
26. For more on the lack of, and underfunding of monitoring, see Kuchinskaya 2014 Olga Kuchinskaya, *The Politics of Invisibility: Public Knowledge about Radiation Health Effects after Chernobyl* (Cambridge, MA: MIT Press, 2014).
27. Zgersky 1998, 270
28. Zgersky 1998, 268
29. Zgersky 1998, 268-9
30. Zgersky 1998, 267
31. Petryna 2013, 5 Petryna writes in 2002 that the Ukrainian citizens “legally designated as *poterpili* (sufferers) number 3.5 million and constitute a full 5 percent of the Ukrainian population” (4).
32. Petryna 2013, 5 I don’t have comparable evidence on Russia or Belarus, but Petryna writes that the compensation payments for Chernobyl victims in Ukraine are financed by a new state-wide 12% Chernobyl tax.
33. Petryna 2013, 25
34. I literally flagged these levels as a typos initially, they were so high.
35. Petryna 2013, 5
36. Petryna 2013, 5 For more details on scientific research into the Chernobyl disaster in Belarus, and the ongoing efforts by the government to silence it, see Kuchinskaya 2014
37. Kozheurov 2014, 100
38. Anisimov, Pavlovich, and Ryzhenkov 2016, 270
39. Anisimov, Pavlovich, and Ryzhenkov 2016, 275, citing ECtHR from 5/7/2002 “Burdov v. Russia” [complaint No. 59498/00]].
40. Anisimov, Pavlovich, and Ryzhenkov 2016, 276
41. Anisimov, Pavlovich, and Ryzhenkov 2016, 276

42. Some of the sources I consulted elaborate distinctions between “liability” and (various shades of) responsibility (absolute, objective, etc.), as well as industrial activities characterized as “toxic” or “noxious” (i.e., dangerous *per se*) as opposed to “hazardous” (which include danger only when operated beyond design parameters). I refer the legally competent readers to the references section.
43. Gerasimova 2002, 109
44. Gerasimova 2002, 110
45. Bychkova 1999, 528
46. Bychkova 1999, 527
47. Bychkova 1999, 527
48. Bychkova 1999, 528
49. Gerasimova 2002
50. Gerasimova 2002, 111 I'm not entirely clear how exactly this affects the implementation of these laws. Presumably people living in contaminated territories can be assumed to have received effective doses of over 1 mSv/year, although the reverse is not necessarily true (people having received an excess dose may live in territories more or less contaminated by long-lived radionuclides). In practice, I suspect, the issue was more mundane: bureaucrats inferred one law to block the implementation of the other.
51. Gerasimova 2002, 110
52. Khlestova 2015, 129, my translation.
53. Kozheurov 2014, 103-4
54. Kozheurov 2014, 139
55. Anisimov, Pavlovich, and Ryzhenkov 2016, 280
56. Anisimov, Pavlovich, and Ryzhenkov 2016, 282

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Compensation for Transboundary Claims in Nuclear Disasters

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INTRODUCTION

The Fukushima meltdown is often described as a uniquely Japanese catastrophe, but its causes and consequences extend far beyond Japan's borders. As the incident unfolded, clouds of radioactive material moved over the Pacific while operators pumped contaminated water into the ocean. A US corporation, General Electric, supplied several of the reactors on a “turn-key” basis and developed aspects of the site's design. The fuel pellets that slumped and melted in the reactor cores, meanwhile, came from overseas where just six countries—Canada, Kazakhstan, Niger, Australia, Russia, and Namibia—furnish more than 85% of all nuclear fuel worldwide. The Fukushima plant itself may be local to Japan, but it is also one point on a broad, transnational web of commerce and contamination. Compensation for nuclear accidents is therefore not just a domestic problem but a transnational one.

From the advent of nuclear power, nation-states with nuclear ambitions bargained to create international legal regimes governing transboundary consequences of nuclear accidents. These regimes sought to buoy and bolster nuclear industries and the capacity of nation-states to develop nuclear power. While several distinct international legal regimes govern transboundary harm, a significant portion of nuclear energy production happens outside of their purview. In the gaps between international conventions and local action, national legal doctrines that are not specific to the nuclear context—ones such as jurisdiction and conflicts of laws—fill the gaps. The viability of claims for compensation arising out of transboundary, transnational harm often depends on fortuitous elements of an individual case.

The Fukushima incident has exposed not only the flaws, but also the unexpected and uncertain compensation *possibilities* of this confusing system. The nuclear meltdown at Fukushima Daichi generated two novel sets of claims within the US courts that deserve greater attention and analysis. As the Fukushima plant melted down in March of 2011, the USS Ronald Reagan, a US Navy aircraft carrier, approached the region from the sea to provide humanitarian assistance. Injured members of the vessel's crew (along with the crews of several other US Navy vessels) sued in the US courts against TEPCO and GE, seeking damages for injuries that they argued were related to their presence off of the coast at the time of the disaster. In a second case, a group of claimants from Japan, led by physicians from heavily affected regions, sued GE, the manufacturer of the reactor, in a US court, arguing that design flaws on GE's part caused the incident.

As we will explain, these transboundary claims would typically be precluded under most national laws, including Japan's, and under the international liability conventions. Indeed, they are precisely the kinds of actions that drafters of international liability conventions hoped to prevent. Ironically, the claims remained viable *only in the context of transboundary harm* because international regulatory regimes have failed to take root. Although, as we shall see, these claims failed in the US courts, they expose important, ongoing gaps and contingencies in regimes covering transnational harm from nuclear disasters.

While this state of affairs may impose heightened and uncertain costs on corporations, it might also afford a wider range of legal possibilities or political leverage to claimants seeking compensation. Such cases also provide new opportunities to think about nuclear power as neither purely domestic nor purely international. The structure of nuclear businesses and

the itinerant character of nuclear harm makes these issues more than just a matter of state-to-state relations. They are trans-local issues that implicate economic, political, and social ties of ordinary citizens, consumers, and corporations.

In this chapter, we describe the patchwork of international agreements relating to cross-border harm from nuclear accidents and identify some of the most significant lacunae in the international legal regimes. We describe how cases and issues that are not covered by these conventions are handled as a matter of private international law. We then turn to claims brought in US courts and analyze their implications for cross-border compensation.

INTERNATIONAL CONVENTIONS

Transboundary harm is governed by a complicated patchwork of national laws, international conventions, and traditional sources of public and private international law. Where a claimant may sue, whom a claimant may sue, what she must prove, and what she may recover are largely contingent on where the plant was located and where the harm occurred. The three worst nuclear power incidents, meanwhile, occurred in states that produced a large proportion of the world's nuclear kilowatt hours, but which had, at the time of the incidents, declined to participate in these international legal regimes: the US, the USSR, and Japan. The US and Japan have since joined one of the international conventions, but many emerging producers of nuclear power, such as the People's Republic of China and the Republic of Korea (South Korea), have not.

Several distinct international legal regimes govern liability for a nuclear reactor incident: the Organization for Economic Cooperation and Development's (OECD) 1960 Paris Convention on Third-Party Liability in the Field of Nuclear Energy and several instruments that supplement or revise it (the Paris Regime); the United Nations International Atomic Energy Agency's (IAEA) 1963 Vienna Convention on Civil Liability for Nuclear Damages and instruments that revise it (the Vienna Regime); the IAEA Joint Protocol of 1988, that links the Paris and Vienna Regimes; and the IAEA's Convention on Supplementary Compensation for Nuclear Damage of 1997 (the CSC).

The Paris and Vienna Regimes are *sui generis* international legal regimes that grew out of early efforts to facilitate nuclear development and international trade in expertise, designs, and technologies by circumscribing

the financial and legal risk to industry participants. Protecting the public against losses was, initially, a secondary concern.¹ Delegations of experts and state representatives negotiated the initial conventions during the 1950s and 1960s.²

After fallout from the Chernobyl meltdown spread across Europe, joint expert committees of the IAEA and OECD worked to improve the Conventions' compensation schemes and to address existing regulatory gaps and ambiguities within them. The situation in Europe was particularly complex. Some member nations had signed on to one agreement, others had signed on to another, and still others had signed on to none at all, raising the possibility of vastly different compensation outcomes for accidents in different member states and raising thorny legal questions.³

In response to Chernobyl, the IAEA also developed a third, US-promoted regime, the CSC, to increase the amount of funding available in the case of a meltdown and to attract nation-states that had declined to join the Vienna or Paris Conventions. The US, for example, had declined to sign on to the Vienna or Paris Conventions because of legal differences in how US legislation treated nuclear liability domestically. The IAEA hoped that the CSC could overcome such differences and increase compensation globally.

Just as Chernobyl prompted new critique and efforts at reform, the incident at Fukushima has once again drawn attention to the international conventions and prompted calls within the IAEA for the promulgation of a truly global international liability regime. The EU and European Commission have begun consulting stakeholders, including the public, about revising these liability regimes. Management of the claims process has drawn particular scrutiny in the wake of the Japanese government's difficulties following Fukushima.⁴ Yet despite newfound interest in reform, the process has progressed very slowly.

Consequently, depending on how one counts, there are currently eleven international instruments governing liability for a nuclear meltdown, summarized in Table 1. Although both the initial Paris Convention and Vienna Convention have been amended, signatory states choose whether and when to adopt and ratify each amendment. Some states still adhere only to the original Paris or Vienna Convention. And many states have declined to join any regime. This creates a confusing patchwork of coverage.⁵



TABLE 1**PARIS REGIME**

INSTRUMENT	ENTRY INTO FORCE
Paris Convention on Third Party Liability in the Field of Nuclear Energy (1960) (PC in table 2, below)	1968
Additional Protocol (1964)	1968
Protocol to Amend (1982)	1988
Protocol to Amend (2004) (RPC in table 2, below)	Not Yet in Force
Brussels Supplementary Convention (1963) (BSC in table 2, below)	1974
Additional Protocol (1964)	1974
Protocol to Amend (1982)	1991
Protocol to Amend (2004) (RBSC in table 2, below)	Not Yet in Force

VIENNA REGIME

INSTRUMENT	ENTRY INTO FORCE
Vienna Convention on Civil Liability for Nuclear Damages (1963) (VC in table 2, below)	1977
Protocol to Amend (1997) (RVC in table 2, below)	2003

LINKING INSTRUMENT

INSTRUMENT	ENTRY INTO FORCE
Joint Protocol Relating to the Application of the Vienna Convention and the Paris Convention (1988) (JP in table 2, below)	1992

SUPPLEMENTARY REGIME APPLYING TO EITHER OR STATES NOT SIGNATORY TO PARIS OR VIENNA

INSTRUMENT	ENTRY INTO FORCE
Convention on Supplementary Compensation for Nuclear Damage (1997) (CSC in table 2, below)	2015

◆ ◆ ◆

TABLE 2⁶

State	# Reactor	# Reactor Under Constr.	TWh Nuc. Pwr	Nuc. Pwr as % of state energy prod.	PC	VC	BSC	JP	RVC	CSC	RBSC	RPC
Argentina	3	1	7.9	5.9		VC			RVC	CSC		
Armenia	1	0	2	27.8		VC						
Bangladesh	0	2	0	0								
Belarus	0	1	0	0		VC			RVC			
Belgium	7	0	41.4	47.6	PC		BSC					
Benin						VC		JP	RVC	CSC		
Bolivia	0	0	0	0		VC						
Bosnia & Herzegovina	0	0	0	0		VC			RVC			
Brazil	2	1	15.2	2.7		VC						
Bulgaria	2	0	15.9	37.5		VC		JP				
Cameroon	0	0	0	0		VC		JP				
Canada	19	0	94.9	14.9						CSC		
Chile	0	0	0	0		VC		JP				
China	49	16	330.1	4.9								
Croatia	0	0	0	0		VC		JP				
Cuba	0	0	0	0		VC						

State	# Reactor	# Reactor Under Constr.	TWh Nuc. Pwr	Nuc. Pwr as % of state energy prod.	PC	VC	BSC	JP	RVC	CSC	RBSC	RPC
Czech Republic	6	0	28.6	35.2		VC		JP				
Denmark	0	0	0	0	PC		BSC	JP				
Egypt	0	0	0	0		VC		JP				
Estonia	0	0	0	0		VC		JP				
Finland	4	1	22.9	34.7	PC		BSC	JP				
France	56	1	382.4	70.6	PC		BSC	JP				
Germany	6	0	71.9	12.4	PC		BSC	JP				
Ghana	0	0	0	0		VC		JP	RVC	CSC		
Greece	0	0	0	0	PC			JP				
Hungary	4	0	15.4	49.2		VC		JP				
India	23	6	40.7	3.2						CSC		
Iran	1	1	5.9	1.8								
Italy	0	0	0	0	PC		BSC	JP				
Japan	33	2	65.7	7.5						CSC		
Jordan	0	0	0	0		VC			RVC			
Kazakhstan	0	0	0	0		VC			RVC			
Korea	24	4	138.8	26.2								
Latvia	0	0	0	0		VC		JP	RVC			
Lebanon	0	0	0	0		VC						
Lithuania	0	0	0	0		VC		JP				
Macedonia	0	0	0	0		VC						
Mauritius	0	0	0	0		VC						
Mexico	2	0	10.9	4.5		VC						
Montenegro	0	0	0	0		VC		JP	RVC	CSC		
Morocco	0	0	0	0					RVC	CSC		
Netherlands	1	0	3.7	3.2	PC		BSC	JP				

State	# Reactor	# Reactor Under Constr.	TWh Nuc. Pwr	Nuc. Pwr as % of state energy prod.	PC	VC	BSC	JP	RVC	CSC	RBSC	RPC
Niger	0	0	0	0		VC			RVC			
Nigeria	0	0	0	0		VC						
Norway	0	0	0	0	PC		BSC	JP			RBSC	RPC
Pakistan	5	2	9.1	6.6								
Peru	0	0	0	0		VC						
Philippines	0	0	0	0		VC						
Poland	0	0	0	0		VC		JP	RVC			
Portugal	0	0	0	0	PC							
Republic of Moldova	0	0	0	0		VC						
Romania	2	0	10.4	18.5		VC		JP	RVC	CSC		
Russian Federation	38	2	195.5	19.7		VC						
St. Vincent & Grenadines	0	0	0	0		VC		JP				
Saudi Arabia	0	0	0	0		VC			RVC			
Senegal	0	0	0	0		VC						
Serbia	0	0	0	0		VC						
Slovakia	4	2	14.2	53.9		VC		JP				
Slovenia	1	0	5.5	37	PC		BSC	JP				
South Africa	2	0	13.6	6.7								
Spain	7	0	55.9	21.4	PC		BSC				RBSC	
Sweden	6	0	64.4	34	PC		BSC	JP				
Switzerland	4	0	25.4	23.9	PC						RBSC	RPC
Taiwan	4	0	22	8								
Trinidad & Tobago	0	0	0	0		VC						

State	# Reactor	# Reactor Under Constr.	TWh Nuc. Pwr	Nuc. Pwr as % of state energy prod.	PC	VC	BSC	JP	RVC	CSC	RBSC	RPC
Turkey	0	0	0	0	PC			JP				
Ukraine	15	2	78.1	53.9		VC		JP				
United Arab Emirates	1	3	0	0				JP	RVC	CSC		
United Kingdom	15	0	65	20	PC		BSC					
United States of America	94	2	809.4	19.7						CSC		
Uruguay	0	0	0	0		VC		JP				



FOUNDATIONAL PRINCIPLES

The Paris, Vienna, and CSC Regimes all focus on the private liability of the producers of nuclear power for harm to private victims rather than on the obligations of states to one another.⁷ In other words, they treat harm from nuclear incidents as a concern of *private* international law rather than one of *public* international law. Although the regimes differ in meaningful ways, it is widely recognized that all three are built on a handful of foundational principles of international nuclear liability.⁸

The regimes channel liability exclusively to the operators of nuclear installations.⁹ Operators alone bear legal responsibility for injuries to persons or businesses outside of the facility harmed by a meltdown. (In states where nuclear operators are state-owned, the state is liable up to the amounts for which any operator would be held responsible.) Corporations providing parts, expertise, designs, or even “turn-key” plants do not face liability for damage to the public caused by a defect in their product or design.

These regimes concurrently place limits on an operator's financial liability for an incident.¹⁰ The operator, in turn, is required to take out financial protection (typically private insurance) up to the full amount of its stated

liability. The amounts set by the regimes are quite low compared to the costs of a catastrophic incident. For ease of reference, the designated financial protection minimums and maximums, where applicable, are summarized in Table 3.



TABLE 3

PARIS REGIME

CONVENTION	FINANCIAL PROTECTION
Paris Convention on Third Party Liability in the Field of Nuclear Energy (1960)	5,000,000-15,000,000 SDR
Protocol to Amend the Paris Convention (1982)	Minimum of 5,000,000-15,000,000 SDR
Protocol to Amend the Paris Convention (2004)	Minimum of 700,000,000 EUR

VIENNA REGIME

CONVENTION	FINANCIAL PROTECTION
Vienna Convention on Civil Liability for Nuclear Damages (1963)	Minimum of \$5,000,000
Protocol to Amend the Vienna Convention (1997)	Minimum of 300,000,000 SDR

CSC REGIME

CONVENTION	FINANCIAL PROTECTION
Convention on Supplementary Compensation for Nuclear Damage (1997)	Minimum of 300,000,000 SDR



The OECD's Paris Convention requires signatory states to set a minimum financial protection level of 5 million Special Drawing Rights (SDR) (about \$7.2 million USD in 2021). No Paris state may set the level of an operator's financial protection below this level. The Convention permits signatory states to extend the financial protection level to a maximum of 15 million SDRs (about \$21.6 million USD in 2021). A 1982 Protocol, which entered into force in 1985, established that signatory states are free to exceed the 15 million SDR cap with state-provided funds.¹¹ Although not yet in force, the

2004 Protocol to Amend the Paris Convention raises the minimum amount of financial protection to 700 million EUR.

The IAEA, in contrast, set the minimum level of financial protection at just \$5 million in deference to states that felt higher caps would make nuclear capacity unattainable for cash-poor states.¹² A state may require operators to provide a higher or unlimited amount of financial protection, but not lower. The 1997 Protocol to Amend the Vienna Convention increases the financial protection level to a minimum of 300 million SDR (about \$432 million USD in 2021). States may set the level lower so long as they provide state funds to cover the shortfall.¹³ The IAEA's CSC requires that a signatory state either ratify one of the Vienna or Paris Conventions, or have national laws in force that require a minimum financial protection level of 300 million SDR.

Several other instruments and the CSC provide for additional compensation tiers that may be drawn upon once financial protection—i.e., the operator's insurance—is exhausted. They create additional layers of compensation for victims harmed by a major incident. The supplementary funding regimes are summarized in Table 4.



TABLE 4

CONVENTION	ADDITIONAL COMPENSATION AFTER FINANCIAL PROTECTION EXHAUSTED	SOURCE OF FUNDS
Brussels Supplementary Convention (1963)	175,000,000 SDR less financial protection	Installation State
	125,000,000 SDR	Member-State Contributions
Protocol to Amend the Brussels Supplementary Convention (2004)	500,000,000 EUR	Installation State
	300,000,000 EUR	Member-State Contributions
Convention on Supplementary Compensation for Nuclear Damage (1997)	Determined by Formula	Member-State Contributions



Within the Paris Regime, the 1963 Brussels Supplementary Convention adds two additional layers of compensation to be drawn upon if the costs of liability for an incident exceed the operator's financial protection. One is a fund provided by the installation state totaling up to the difference between 175 million SDRs (about \$252 million USD in 2021) and the amount of financial protection. The third layer is a pooled fund of 125 million SDRs (about \$180 million USD in 2021) comprised of member-state contributions. The total of the three layers of compensation in the Brussels Supplementary Convention is therefore 300 million SDRs (about \$432 million USD in 2021). The 2004 Protocol to Amend the Brussels Supplementary Convention increases the second tier of installation-state-provided funds to 500 million EUR and the third tier of pooled public funds to 300 million EUR. These 2004 amendments have not yet entered into force.¹⁴

The CSC Regime provides one additional layer of compensation above the financial protection requirement. This is a pooled, international fund to which signatory states are required to contribute after damages exceed the primary tier of coverage—e.g., after the operator's insurance or indemnity is exhausted. The amount of this fund depends on the number of signatory states and the number of reactors and installed nuclear capacity of each signatory state. A formula uses these factors to scale a signatory state's contribution to the size of its nuclear industry.¹⁵

In addition to limiting operators' liability in terms of the amount of compensation available, the regimes also impose time limits on an operator's liability.¹⁶ Initially, all three Conventions set the limit at ten years following an incident.¹⁷ The 1997 Protocol to Amend the Vienna Convention and the 2004 Protocol to Amend the Paris Convention raised the limitations period to thirty years.¹⁸ The CSC allows the period of limitation to extend beyond ten years, provided the financial protection policy—either insurance or government indemnification—is still in place. But in practice, most private nuclear insurance policies expire after only ten years.

Moreover, the regimes typically impose a form of *strict* or absolute liability on operators.¹⁹ This means that although claimants still need to prove that their injuries were caused by the actions of the party being sued (causation) and establish the financial extent of their injury (damages), they need not prove that an operator is at fault. These provisions relax some of the legal burdens that claimants face.

Finally, the regimes set jurisdiction over claims with the courts of the nation-state in which the incident occurs. With few exceptions, this is defined as the

state in which installation is situated.²⁰ In other words, nuclear nation-states typically hold the right to pass judgment on incidents occurring at facilities within their territory. The presiding court determines the law that applies to a case.

PROBLEM AREAS

All of the previously outlined provisions circumscribe liability and legal uncertainty for operators and suppliers, but the resulting regimes are far from comprehensive or robust. Some of the instruments conflict with each other and each instrument leaves regulatory silences. We summarize several key problems below.

Lack of Adherence by Nuclear Power States

Perhaps the greatest problem is that several major nuclear power states refuse to join a regime. Notably, China and South Korea have not signed on to any of the alternatives. Japan only joined the CSC in 2015, long after the devastating Fukushima catastrophe. As East Asia expands its nuclear power capacity, the risk of transboundary harm within the region will grow. Where nuclear facilities are state-owned, doctrines of sovereign immunity, which preclude claims against the state, may prevent any recovery against an operator.

No Provision for State Liability

The Conventions do not address the liability of states to one another or to individual citizens. Although IAEA has considered promulgating a separate instrument to govern state liability, every attempt has met opposition. Under customary international law, it remains unclear whether a state can be held liable for damage caused by lawful activities, such as the generation of nuclear power. Partly for this reason, European states affected by Chernobyl's fallout compensated their own citizens for harm rather than suing the USSR. If an incident like Chernobyl happens again in a state-owned facility of a non-signatory state, the same legal problems will follow. For example, it might be difficult for a state to recover damages on behalf of its citizens for transboundary harm from a meltdown in China.

Level of Compensation

Fundamental differences remain between the Paris and Vienna Regimes' requirements for financial protection. The Joint Protocol resolved that any claimant from a state that had ratified either the Vienna or Paris Convention as well as the Joint Protocol could claim the benefits of the Convention in force in the installation state. Not all Paris and Vienna states signed the Joint Protocol, however. The Paris Regime provides for higher levels of financial protection than Vienna. It remains unclear which financial provisions would apply if an installation in a state signatory to one Convention irradiated victims in a state covered by the other.

In addition, supplemental compensation pools provided by the Brussels Convention on Supplementary Compensation and the Protocol to Amend the Brussels Convention are limited to member states. If an incident in a Brussels state harms victims in a non-Brussels state, for example, less compensation would be available to remedy the injuries of claimants from the non-Brussels state.²¹ Brussels states insisted on this limitation since the supplementary pools are comprised of public funds. The limitation, however, could result in a particularly unjust allocation of resources were a Brussels state to cause extensive damages in a non-nuclear, non-signatory state such as Austria, Ireland, or Luxembourg. The CSC addresses this tension by setting aside half of the pooled, supplemental compensation exclusively to address transboundary damage.²²

Even in regions where many nuclear power states participate in the same regime, as in much of Western Europe, the cost of a catastrophic incident would dramatically outstrip the levels of compensation that most national legislation and international conventions provide. By way of comparison, in 2019, the think tank Japan Center for Economic Research suggested that costs of the Fukushima disaster may run as high as \$315-\$728 billion US dollars.²³ No international convention comes close to requiring this level of funding and most nation-states' domestic laws similarly cap damages at far lower levels. Some signatory states, moreover, may struggle to find the cash reserves necessary to meet their obligations, let alone to cover the costs of a catastrophic meltdown. Armenia's sole reactor, for example, does not have a containment unit and sits in a seismically active region. A catastrophic incident at a facility with no containment unit would cause a tremendous amount of damage and potentially a significant amount of transboundary harm that could outstrip the operator and the state's resources.

Suppliers' Immunity

Imposition of liability for faulty products or design is one means of promoting safety in a variety of industries. If suppliers know they will face liability should their products or designs cause harm, then they may invest in safety *a priori*. Under all three regimes, however, nuclear technology suppliers are shielded from liability even if an incident is caused by their negligence or a defect in product or design. This initially induced technology suppliers to participate in developing the fledgling industry. It is unclear, however, why suppliers should still be entitled to such protections after nearly seven decades of experience and profit in the nuclear field.

Supply of nuclear technologies also raises issues of state participation and immunity from liability. Increasingly, aspiring nuclear power states are contracting to purchase nuclear reactor facilities fully designed, built, and installed by a handful of corporations—so-called “turn-key” plants. Previously, privately-owned US and Japanese technology suppliers dominated this business. In more recent years, a number of wholly or partly state-owned corporations have moved into this field. Russia, China, South Korea, and France have supported these ventures. Although, as we discuss below, the lack of coverage by a Convention may open up suppliers to liability, many of these state-run corporations, such as Russia's Rusatom and France's Areva, claim protections of sovereign immunity.²⁴ As state-run entities, moreover, these corporations are able to benefit from diplomatic negotiations between states. The Russian government, for example, has negotiated bilateral agreements governing nuclear liability with states in which Rusatom is operating.²⁵

Lack of Claims Process

The Conventions dictate which courts will have jurisdiction over claims arising from an incident, but say little else about the administration of claims. Granting jurisdiction and choice of law to installation states may tilt the playing field towards nuclear industry interests as against foreign claimants. Difficulties crafting a fair and easy-to-use claims system compound such problems. As Suami et. al. discuss in this report, the Japanese government had to craft an ad hoc claims procedure in the wake of Fukushima, and Japanese claimants have faced difficulties in navigating this system. Issues surrounding the administration of claims and compensation would be magnified in the case of major transboundary harm. Even assuming foreign claimants would be treated fairly, they would

still face a difficult process of navigating a foreign legal system to make damage claims. Despite periodic references to the burden that victims would bear in navigating a claims process in a foreign installation state, the international community has not addressed these problems prospectively.

Conflicts Between Instruments

The CSC was designed to mesh with the Paris and Vienna Regimes. The 1988 Joint Protocol, moreover, reconciles differences between them. Among other things, it enables sufferers in a signatory state to claim the benefits of whichever Convention is in force in the installation state. Policymakers hoped the Joint Protocol could entice newly post-socialist states to join the Conventions, creating more uniform coverage within Europe but, as shown in Table 2, its adoption by Paris and Vienna states has been far from uniform.²⁶ Consequently, conflicts between the Vienna and Paris Conventions remain relevant today. Important differences center on the Conventions' territorial application, to which we now turn.

Territorial Scope & the Question of Non-Signatory States

The Vienna and Paris Conventions only apply to damage suffered in a contracting state. With minor exceptions, the 1997 Protocol to Amend the Vienna Convention expands the reach of the Convention to all damage, wherever suffered.²⁷ The 2004 Protocol to Amend the Paris Convention expands the reach of the Convention to non-contracting states that have no nuclear installations or that provide equivalent protections under national law.²⁸ Because few signatory states have ratified amendments to the Paris or Vienna Conventions, however, there is still the possibility that victims in a non-nuclear, non-contracting state, such as Austria, Ireland, or Luxembourg, could receive different treatment than other victims.

Definitions of Damage

The Paris and Vienna Regimes initially limited claimants to recovery of damages for bodily injury, death, and harm to property. Damage to the environment and costs of environmental remediation were left out of the Conventions as were other kinds of damages, such as emotional harm or harm to reputation. Although the Revised Vienna and Paris Conventions and the CSC now permit signatory states to enact laws that would allow recovery of a wider array of environmental harms and injuries, they neither cover

such damage under their own terms no require states to legislate in this area. Thus, recovery for environmental harm and for injuries beyond the narrow categories of embodied harm, death, and property damage varies depending on both the controlling convention and the underlying laws of the installation state.

Contingency and Unpredictability of Transboundary Harm

Decades of research have shown that the environmental pathways of radiation are complicated. Radioactive materials collect in hotspots and move in unpredictable ways. Human activity, similarly, brings unexpected populations into proximity of harm from a meltdown. Fukushima offers a case in point. No transboundary claims were expected, yet ship crews faced possible exposures. The unpredictability of exposures, coupled with the difficulties that lay-communities face in detecting exposure and linking it to harm, add further burdens to claims-making in the transboundary context.

THE CASE OF FUKUSHIMA

As we have seen, international nuclear liability regimes attempt to limit the consequences of a meltdown for corporations and states. They are not principally oriented towards protecting members of the public. Yet, paradoxically, a number of major nuclear nation-states have *not joined* any of these conventions. Prior to the Fukushima meltdown, Japan had elected not to join one of the international conventions. In the wake of Fukushima, claimants brought lawsuits over the meltdown in both the Japanese and the US courts. Litigation over Fukushima exposes the strange and imperfect patchwork of reactor liability that endures in the gaps between international treaties. It also highlights claimants' concerns with the bargains struck by international liability regimes.

Japanese law presents foreign claimants with several means of obtaining compensation for damage suffered within Japan.²⁹ First, foreign claimants may make claims under Japan's administrative compensation scheme on the same terms as compensation to Japanese citizens, subject to the condition of reciprocity.³⁰ In addition, some foreign claimants may also sue for compensation within the Japanese courts. The Fukushima District Court has ruled that, as concerns claims against the Japanese government, foreign citizens can sue the Japanese government as long as a Japanese citizen could bring a similar lawsuit in the foreign citizen's home state.³¹

The situation is far less clear for injuries suffered by foreign claimants located outside of Japan, however. There has been no legal decision explicitly permitting such claimants to bring lawsuits.³² Similarly, it is not clear whether the Japanese compensation scheme extends to harms from the Fukushima accident suffered outside of Japan.³³ As an added concern for potential claimants, TEPCO itself has been a key player in developing and administering compensation regimes. As a result, claimants seeking redress for harms suffered outside of Japan and others seeking new avenues for recovery have sued abroad in the US federal courts.

The first set of claims implicated the transboundary nature of nuclear harm. In the immediate wake of the triple disaster, US Navy vessels approached the coast of Japan on a humanitarian relief mission known as Operation Tomadachi. Fallout from Fukushima, the US plaintiffs alleged, irradiated their ships as they moved through international waters and into Japanese waters. Thus, a double transboundary movement—of the fallout and of the ship—was in issue.

Crew members of the USS Ronald Reagan and other ships participating in the mission brought claims in US federal court in California across several cases, *Cooper*, *Bartel I*, and *Bartel II*.³⁴ The plaintiffs in these suits sought compensation from TEPCO and General Electric (GE), the designer and manufacturer of the plant, for negligence, strict liability for manufacturing and design defects, and strict liability for ultrahazardous activities. The movement of fallout over US vessels and US citizens, they argued, entitled them to the protection of US laws and courts as against TEPCO, the Japanese plant operator, and GE, the US designer.

A second set of claims, in contrast, targeted the trans-boundary nature of nuclear production—the movements of parts, designs, expertise, and capital.³⁵ In the *Imamura* case, it was not the movement of fallout that theoretically opened US law and courts to plaintiffs, but rather the participation of US corporations in the allegedly harm-causing incident. Nine Japanese plaintiffs, mainly medical doctors from Fukushima Prefecture, filed a class action suit against GE in US federal district court in Massachusetts, home of GE's international headquarters. They alleged many of the same claims as the *Cooper* and *Bartel* plaintiffs—negligence, strict liability for manufacturing and design defects, strict liability for ultrahazardous activities—and also included claims for damage to real property. In essence, the *Imamura* plaintiffs argued that the participation of a US corporation in the design of an allegedly faulty facility enabled them to call on US laws and courts for redress against GE, the US designer.

Together, these US court cases exposed tensions between the bounded territorial configurations of law and courts, on the one hand, and the itinerant nature of both nuclear harm and global capitalism, on the other. They raised important issues surrounding the status quo ante in global liability regimes. Namely, they renewed questions of whether it is just and fair to leave many aspects of decision-making over nuclear liability claims with interested parties such as nuclear operators. Moreover, these cases raised questions about whether claims should be resolved and governed by the legal institutions and laws of nation-states where incidents occur, many of which have vested interests in perpetuating nuclear power and limiting public liability. The US litigations refracted these issues through complicated legal questions of jurisdiction, forum, and choice of law. We discuss each in turn.

Jurisdiction

How is it that TEPCO, a Japanese nuclear plant operator, found itself defending a claim for compensation in a US federal court? Personal jurisdiction doctrines arising under US state and Constitutional laws determine when a foreign party may be sued in the US courts. The *Bartel II* claims raised the issue of whether doctrines of general jurisdiction—which require a defendant to have a strong connection to the US state where litigation is brought—support US court jurisdiction over damage from Fukushima.

The plaintiffs argued that TEPCO's business ties to the state of California were sufficient to support court jurisdiction there—that TEPCO “purposefully availed” itself of California. The plaintiffs contended that TEPCO's registration in 2003 to do business in California as well as its relationship with GE, which designed the Fukushima plant and had headquarters in California until 2005, supported general jurisdiction.³⁶

TEPCO's business relations within California, however, had little specific connection to the Fukushima meltdown, the court surmised. Although the District Court found that TEPCO had contact with California, it ultimately held that TEPCO's actions in the state did not relate sufficiently to the operation or meltdown of the Fukushima power plant in Japan. The court dismissed these claims for lack of personal jurisdiction.³⁷

The plaintiffs appealed this ruling to the US Court of Appeals for the Ninth Circuit, but the appeal turned solely on whether the plaintiffs filed their notice of appeal in a timely manner. The circuit court dismissed the case,

reasoning that the plaintiffs had missed the filing deadline.³⁸ The *Bartel* dismissals stand.

Forum Non Conveniens

US plaintiffs have faced obstacles to suing TEPCO, a Japanese corporation, in the US. But in the *Imamura* case, the facts were reversed: the defendant was a US corporation, and the plaintiffs were Japanese. This time, the US court located in Massachusetts accepted jurisdiction because it is a long-accepted doctrine that corporations can be sued at their principal place of business. Yet it is also well-established that plaintiffs may sue in their home states, and hence that Japanese courts could also exercise jurisdiction. The *Imamura* litigation therefore raised questions about which forum was the most appropriate one for a trial. While the plaintiffs argued that the US courts would be the fairest and most logical forum, GE successfully sought removal of the claims to Japan under doctrines known as *forum non conveniens*.³⁹

The *Imamura* litigation showed how plaintiff claimants attempted to work the gaps in the international system to their favor. The clever theory of the *Imamura* litigation was this: while both US and Japanese statutory law protect manufacturers from liability, neither legal system regulates fully cross-border claims for compensation. Where there is no statutory law, ordinary tort law fills the gap, and ordinary tort law allows the plaintiffs to recover against manufacturers if certain thresholds of liability can be proven. Hence, the plaintiffs brought *ordinary tort claims* against GE. The cross-border movement of parts, expertise, and capital opened up the possibility that GE could face liability in the US courts.

Since jurisdiction was not in question, GE argued that Japan would be a better forum for the litigation than US courts in Massachusetts. The District Court's analysis of GE's claim turned on whether Japan offered an "alternative adequate forum"—on whether the balance of public and private factors in the case favored resolving the claims there.⁴⁰ In this case, the alternative forum was not the Japanese courts, but the Alternative Dispute Resolution Center (ADRC) created through the Japanese Nuclear Compensation Act. The plaintiffs argued that the ADRC would not be an alternative adequate forum because, among other things, the sizes of its awards are not comparable to tort awards in the US courts and its mechanisms channel all liability to TEPCO, relieving GE of any potential liability.⁴¹ In other words, they argued that the claimants would not be made

whole. They also identified TEPCO's potential conflict of interest as both the alleged tortfeasor and a party having a role in making awards.

The District Court disagreed with the plaintiffs and held that the ADRC was an alternative adequate forum. It reasoned that the ADRC had awarded other claimants with compensation, even though GE was not the payor. It noted, moreover, that claimants still retained the right to sue TEPCO in the Japanese courts.⁴² Japan, in sum, provided some compensation, however incomplete. This, according to the court, was enough to render Japan an alternative adequate forum.

The court next turned to the balance of public and private factors. Noting the curious nature of the case, the District court expressed its belief that the Japanese plaintiffs' preference for a US court was not entitled to deference because it seemed like impermissible forum shopping. It also assumed that Japanese law would apply in the case under Massachusetts conflict of laws precedents. Pointing to administrative difficulties of running such a trial in the United States, the court ruled in favor of GE and dismissed the case.⁴³

The US Court of Appeals for the First Circuit affirmed this decision on April 24, 2020, approving of the District Court's reasoning.⁴⁴ The theory of the litigation—the fact that navigating the interstices of treaty law potentially opened GE to liability—was ultimately held against the claimants.

For a time, the *Imamura* case raised the tantalizing possibility that producers of parts and expertise might be held liable for defects in their products. Though the plaintiffs' efforts were unsuccessful in this case, the pathway remains open. A future meltdown, perhaps one with a more patently inadequate compensation or no compensation scheme at all, could yield a different result.

Conflict of Laws

Determining *where* a case will be heard is only a threshold question. Courts exercising jurisdiction must also determine *which nation-state's laws* will apply. As the *Imamura* court noted, a case litigated in the United States might involve the application of Japanese laws. The doctrines governing these questions are known as conflict of laws, or private international law.

Conflict of laws doctrines are understood as analogs to the public international law of treaties, discussed above. In the absence of applicable treaty law, they provide the doctrinal fabric that knits together different legal regimes across jurisdictions. Because these legal doctrines are

domestic and vary between jurisdictions, the availability of compensation may turn on *where* the case is brought.

The *Cooper* litigation against GE, TEPCO, and several other suppliers showcased the operation of these doctrines and the stakes for the claimants.⁴⁵ For the *Cooper* plaintiffs, the choice of law question was outcome determinative, since TEPCO waived its jurisdictional defenses.⁴⁶ Under Japanese law, as explained above, the Japanese Nuclear Compensation Act would bar a lawsuit against GE and would establish limits on TEPCO's liability to each plaintiff. California laws, in contrast, opened up possibilities for recovery under tort (personal injury) laws since the US Federal law governing nuclear accidents, the Price-Anderson Act, only covers US-licensed facilities. While the plaintiffs urged the application of California law, GE and TEPCO argued the court should apply Japanese law to the dispute.⁴⁷

The *Cooper* trial court applied California's three step "governmental interest" analysis to determine which jurisdiction's laws should apply. This entailed assessing: 1) whether the laws of the jurisdictions differ, 2) whether both jurisdictions have a legitimate interest in the decision, and 3) assuming the prior two questions are answered in the affirmative, which state's interests would be most impaired if its laws were not applied—an analysis called "comparative impairment."⁴⁸

The *Cooper* court held that the first two elements of the analysis were satisfied. California state law might provide remedies that Japanese law would not. The court further held that both California and Japan have legitimate interests in the decision. While California has a strong interest in promoting product safety and preventing nuclear disaster, Japan has an interest as the place where the incident occurred as well as in the policy-aims of its compensation scheme.⁴⁹ The District Court's analysis therefore hinged on the question of comparative impairment.

Comparative impairment doctrines seek to tip the balance toward the laws of the state with the greatest interest in a conflict. The comparative impairment test asks which state's interests would face greater harm and then applies the laws of that state.⁵⁰ The *Cooper* plaintiffs argued at trial that California's interests would be more impaired because Japanese law would totally absolve GE—the supplier of parts and designs—from liability. This, they reasoned, would strip any incentive for GE or other companies to build safe reactors. The plaintiffs also contended that recovery from TEPCO under the Nuclear Compensation Act was impermissibly limited.⁵¹

The *Cooper* court held that Japan's interest in applying its Compensation Act uniformly and fairly to businesses outweighed California's interest in product safety. It concluded that Japanese laws should apply to the dispute. Since the Compensation Act channels all liability to the operator, the court dismissed the claims against GE. Noting the "overwhelmingly strong" interest of Japan in preserving its compensation scheme, the court also dismissed the claims against TEPCO.⁵² The US Court of Appeals for the Ninth Circuit affirmed the District Court's decision and reasoning almost ten years after the Fukushima meltdown, ending the claimants' search for redress in the US courts.⁵³

Like *Bartel* and *Imamura*, however, *Cooper* nonetheless demonstrates the dramatic contingency of litigation in the interstices of the international conventions. The courts gave substantial weight, in the end, to the bilateral international relations between the US and Japan and to Japan's compensation system and policies. But the United States does not enjoy such close relations with all nuclear power states, and it remains an open question how rising nuclear-power states might handle compensation. The pathways exposed by the Fukushima cases remain open.

US Claimants in Japan?

The above cases involved lawsuits brought in the US concerning harms suffered in Japan. These cases highlighted the possibilities for interested parties to control compensation at the expense of those harmed by a meltdown. Yet the US courts have remained skeptical of plaintiffs' motives and generally have deferred to defendants' arguments for dismissal on a variety of grounds. But what of the reverse possibility—what if plaintiffs chose to sue in Japan seeking compensation for harms suffered outside of Japan?

A leading expert in Japanese private international law, Professor Masato Dogauchi, has argued that if any party sustained injuries from the Fukushima accident outside of Japan—for example if an American fisherperson claimed that his or her livelihood was impeded due to concerns about the effects of radiation on US fisheries—a Japanese court would hear the claim but would apply *foreign law*⁵⁴ (in this case, the law of the US state in which the fishing occurs) to the dispute *to the extent that a claim could be maintained under Japanese law*.⁵⁵

The implication is that a claim against TEPCO, which is allowable under Japanese law, would proceed according to the law of the US state to

determine liability and compensation, but a claim against a US or foreign manufacturer of the nuclear power plant could not proceed, even if it were allowed under US state law, because a Japanese statute protects manufacturers of nuclear power plants from liability.

In the aggregate, these questions—especially those surrounding conflict of laws—will be an important dimension of any future cross-border claims for compensation for nuclear accidents. One can imagine, for example, an accident in Korea or China, neither of which are parties to any of the international conventions, leading to claims in Japan, based on the pollution of the environment in Japan. According to Professor Dogauchi, if any person suffered damage in Japan due to a nuclear accident outside of Japan—if for example a Japanese fisherperson sustained economic damages due to contamination of Japanese waters from a nuclear accident in Korea—the Japanese citizen could bring a lawsuit before Japanese courts and Japanese law would apply. In such a case, however, the Compensation Act would not apply, since that Act concerns only incidents occurring in Japan, so general principles of Japanese tort law in the Civil Code would determine the extent of liability and damages.⁵⁶

CONCLUSION

At one time, during the heart of the Cold War, the promotion of the nuclear power industry seemed an unqualified good to national and international lawmakers. But three disasters later, as victims attempt to rebuild and new states seek nuclear technologies it is time to reconsider the basis of the bargain.

Claimants' attempts to recover in the interstices between treaty regimes have so far failed. Yet the challenges expose the ways in which the system as a whole favors pro-nuclear interests. Concerns of promoting safety in the supply of parts and designs fall to the wayside. Those affected by meltdowns, meanwhile, pay the price in the form of diminished financial recovery through administrative compensation regimes. The public at large may accept this state of affairs where, as here, the disputes involve two closely allied nation-states. But dynamics in global markets for nuclear energy suggest that the states' interests will not always be so aligned.

Today, the nuclear power ecosystem is shifting toward emerging markets. While nuclear power faces economic and political woes in jurisdictions like the United States and Germany, other nation-states are pressing forward

with nuclear development. The World Nuclear Association reports that twenty countries have plans to become nuclear-power states. Existing nuclear power states such as China, Korea, and India are pursuing plans to expand nuclear capacity. As more states build more nuclear reactors, the risk of a transboundary incident grows along with the possibility that nuclear nation-states might not have the political wherewithal or adequate resources to handle the transboundary aftermaths of a catastrophe. As we have seen throughout the report, the existing, imperfect system suffers from important defects in coverage. It also has substantial room for play at the joints, in the places where the uneven patchwork comes together in transboundary disputes.

Victims have driven these novel litigations as a means of having a voice in questions of compensation. Their recourse to the courts is unsurprising. Throughout the long history of international discussions of transboundary aspects of nuclear meltdowns, at-risk and harmed communities have been left out of serious conversations about legal standards and reforms. While Fukushima has prompted a new wave of discussions over third party liability within the IAEA, OECD, and similar organizations, it seems that claimants' experiences in seeking compensation have remained less of a concern. Work remains to be done to understand their experiences of diverse compensation systems, their understandings of the complicated legal situation, and their preferences for addressing nuclear risk moving forward.



1. See Pelzer 2007
2. For a detailed overview of the procedural histories of drafting at the IAEA see Szasz 1970, 703-709; and at the OECD see Schwartz 2007; Pelzer 2007
3. Borrás 2008, 31-42
4. Heffron, Ashley, and Nuttall 2016, 8-9
5. See Currie 2006, 85; Adisianya n.d.
6. Source for Columns 2-5: World Nuclear Association, Table & Country Profiles (last visited 01/15/2021). Data vary by country as to year collected. Columns 6-13 include only states that have both signed and ratified or acceded to a convention. Data drawn from up-to-date lists available from OECD, and IAEA, (last visited 01/15/2021).
7. One IAEA regulator proposed a convention on state liability, but this was widely dismissed as a "gimmick" to increase IAEA influence in comparison to OECD in the nuclear field. See TFC/PC/435, 1957, Folder: 201498441, OECD Archive.

8. Detailed elaboration of these complicated conventions is beyond the scope of this chapter and has been covered in depth by legal commentators who, like Schwartz and Pelzer, have served in various capacities within these international organizations. For a detailed overview, see Schwartz 2010, 307-354; Pelzer 2010, 355-386 For extensive commentary on the IAEA regimes (the Vienna Convention and the Convention on Supplementary Compensation) see International Atomic Energy Agency, 2007 On the Paris regime see OECD, Revised Exposé des Motifs (Paris: OECD, 1982).
9. Schwartz 2010, 310-311
10. Schwartz 2010, 312-313
11. Schwartz 2006, 42-44 As Schwartz explains, the SDR is unit of measure defined by the International Monetary Fund and tied to the value of the US Dollar, UK pound, the Euro, and the Japanese Yen. Her estimates, used in this text, were prepared according to the 2006 exchange rates. The exchange rate is about the same in 2021 as it was in 2006.
12. Schwartz 2006
13. For summary of these change see Schwartz 2010, 21-61
14. See Schwartz 2010, 333
15. Schwartz 2010
16. On this principle, see Schwartz 2010, 320-321
17. Schwartz 2010, 320-321
18. For summary of these change see Schwartz 2010, 326-328 For a detailed recounting of all technical changes see International Atomic Energy Agency, 2007, 21-61.
19. On this provision, see Pelzer 1988, 100-101
20. See Schwartz 2010, 321-322
21. See Schwartz 2006, 44
22. Schwartz 2010, 329-331
23. Kumori 2019
24. On the shifting supply market and participation of states within it see Kerr, Holt, and Nikitin 2014, 20-21
25. Heffron, Ashley, and Nuttall 2016, 9-10
26. See Schwartz 2010, 325

27. Schwartz 2006, 47; Schwartz 2010, 325
28. Schwartz 2006, 54
29. See Feldman 2015, 127; Lerner and Tanzman 2013, 543
30. Article 6 of the State Redress Act: "In cases where the victim is a foreign national, this Act shall apply only when a mutual guarantee exists."
31. See Fukushima District Court, Judgment, October 10, 2017, *Hanrei Jihō* Law Cases Reports, No. 2356, p. 3 (finding that the reciprocity requirement was satisfied with respect to Korea, China, the Philippines, and Ukraine).
32. Cf. Tokyo High Court, Judgment, July 18, 2007, *Hanrei Jihō*, No. 1994, p. 36 (which rejected the claim on the ground of the injuries caused by the explosion of the hazardous gas thrown away in China by the Japanese army during the World War Two, but with the reason other than the place of the injury). However, recently, the Tokyo District Court held that the State Redress Act shall directly apply to a claim for damages in cases in which a Japanese civil servant has caused harm against a natural or legal person in the exercise of public authority in a foreign country. Tokyo District Court, Judgment, February 12, 2020 (Hei 30 (wa) No. 32649), *unpublished* (available at Westlaw Japan, 2020WLJPCA02128018).
33. See Nomura, Hokugo, and Takenaka 2012, 21
34. See generally *Bartel v. TEPCO*, 2018 WL 312701 (S.D. Cal. Jan. 5, 2018) (hereinafter *Bartel I*); *Bartel v. TEPCO*, 371 F.Supp. 3d 769 (S.D. Cal. 2019) (hereinafter *Bartel II*); *Cooper v. TEPCO*, 2019 WL 1017266 (S.D. Cal. Mar. 14, 2019) (hereinafter *Cooper*). All three cases arise out of the same fact pattern, yet their procedural history is complicated due to a number of early deficiencies in the complaints. For the sake of simplicity, we supply citations to the most recent decisions in these cases.
35. See *Imamura v. GE*, 371 F.Supp.3d 1 (D. Mass. 2019).
36. See *Bartel II*, 371 F.Supp.3d at 785-789.
37. *Bartel II*, 371 F.Supp.3d at 785-789.
38. *Bartel v. TEPCO*, 2019 WL 5260743 (9th Cir. Jul. 30, 2019).
39. *Imamura*, 371 F.Supp.3d at 5.
40. *Imamura*, 371 F.Supp.3d at 7.
41. *Imamura*, 371 F.Supp.3d at 7-10.
42. *Imamura*, 371 F.Supp.3d at 7-10.
43. *Imamura*, 371 F.Supp.3d at 10-14.

44. *Imamura*, 371 F.Supp.3d at 15; *Imamura v. GE*, 2020 WL 1969460 (1st Cir. Apr. 24, 2020).
45. See generally *Cooper*, 2019 WL 1017266.
46. See *Cooper*, 2019 WL 1017266 at 10.
47. See *Cooper*, 2019 WL 1017266.
48. *Cooper*, 2019 WL 1017266 at 5-9.
49. Memorandum of Points and Authorities in support of GE's Motion to Dismiss at 6, *Bartel v. Tokyo Elec. Power Co., Inc.*, 17-CV-1671-JLS, 2018 WL 312701 (S.D. Cal. January 5, 2018).
50. See Memorandum of Points and Authorities in support of GE's Motion to Dismiss at 7-9.
51. Memorandum of Points and Authorities in support of GE's Motion to Dismiss at 7-9, 12-13.
52. Memorandum of Points and Authorities in support of GE's Motion to Dismiss at 9-12.
53. *Cooper v. TEPCO*, No. 19-55295 (9th Cir. May 22, 2020).
54. Memorandum of Points and Authorities in Support of GE's Motion to Dismiss at 15, *Imamura et al. v. General Electric Company et al*, Docket No. 1:17-cv-12278 (D. Mass. November 17, 2017).
55. Dōgauchi 2013, 131 However, Nomura, Hokugo, and Takenaka 2012, 21 argue that the application of California law would be problematic because it is unforeseeable from the point of view of the tortfeasor, although they give no reason for this argument.
56. Article 22 (1) of the *Hō no tekiyō ni kan suru tsūsoku-hō* the Act on General Rules for Application of Laws: "If the obligations arising from a tort are governed by a foreign law, claims for damages or any other remedies under that law may not be claimed if the event does not constitute a tort under Japanese law."

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Appendix One

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Cry from the Scene

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Cynthia Bowman
Grace Guo
Clark R. West
Tai-Li Lin
Grace Kuo
Naoki Kamiyama*

This forum took place March - May 2011



NAOKI KASUGA “CRY FROM THE SCENE”

What follows are excerpts from a document found at the following website:
<https://web.archive.org/web/20210223092500/https://iam-k.com/HIRAI/pageall.html>

I don't know if the contents of this document are trustworthy, but the document was circulated as significant reference material among the members of a research group based at Kyoto University. I cannot imagine any absolutely trustworthy information in the current situation. The fact is that the socially constructed nature of information itself has been exposed. Many of my Japanese colleagues do not believe that this document should be circulated further. They want to handle information as carefully as

possible and keep it limited so that any panic may be avoided while the current difficulty is being overcome. (A majority of Japanese people would probably accept this view). This is very different from the way I think Americans approach a crisis. The American way would seek to overcome a crisis situation by exaggerating its criticality and creating a strong leader and self-sacrificing heroes.

The questions I would like to put forward through the following excerpts are: 1) What does the current situation illuminate about contemporary problems nuclear power plants embody in a highly concentrated fashion as ostensible foundations of the global economy, such as manualization, audit culture, modularized industries, non-regular employment, and social discrimination?; and 2) What does the circulation of this document itself tell us about the kind of information we need to sort and link together in order to construct reality? I would appreciate your comments.

Please find below some information about the author of the document, Hirai Norio:

Hirai Norio passed away in January 1997. He was a plant plumbing technician who served as an advisor to the Citizens Forum for Nuclear Power Plant Accident Investigation and director of the Support Center for Nuclear Power Plant Workers Exposed to Radiation. He also served as a special assistant to the plaintiffs in the injunction against the construction of Hokuriku Electric Power Company's Noto (later Shiga) Nuclear Power Plant and special assistant to the plaintiffs in the injunction against the construction of Tohoku Electric Power Company's Onagawa Nuclear Power Plant, as well as a witness for the plaintiffs in the injunction against the operation of Reactor No. 3 at Fukushima Daini Nuclear Power Plant.

What follows are excerpts from the document:

I am not an anti-nuclear power plant activist. This is simply a report from someone who worked at a nuclear power plant for twenty years. There are many people who can talk about the design of nuclear power plants, but there are few who talk about the actual construction of plants. My specialty is plumbing at industrial plants, such as large chemical factories. I worked as a site manager for a long time.

The central government and electric power companies emphasize that all nuclear power plants are safe because they are earthquake-resistant and are built on solid rocks. However, this is nothing but a fairy tale. As the Hanshin-Awaji Great Earthquake (Kobe Earthquake) has revealed, no close

monitoring is being done on the actual construction and maintenance of these plants.

In recent years there have been numerous accidents caused by human errors at nuclear power plants. This is because there are not too many professional (experienced) technicians on site. Even if the design of a plant is excellent, it is not followed in construction and maintenance work. What is assumed as an absolutely critical condition at the stage of designing is that construction is performed by craftsman technicians with superb skills. But the reality is that nuclear power plants or any other buildings are constructed by a bunch of unskilled persons, from on-site workers to inspectors. Until recently, craftsman technicians known as *boshin* and team leaders with more experience than younger site managers were always on construction sites.

About ten years ago, these craftsman technicians started disappearing from construction sites. Complete amateurs are recruited. Prior experience is not required. Since craftsman technicians disappeared, construction has been manualized so that amateurs may construct buildings. As a result of manualization, what is done at the construction site is just like piling up toy building blocks, that is, simply matching prefabricated parts already partially assembled at factories like matching No. 1 to No. 1, No. 2 to No. 2, etc. Workers construct buildings without fully understanding what they are doing at each step, what particular significance each step has, etc. This is one of several factors contributing to the frequency of accidents and malfunctions.

Because of the exposure to radiation, you cannot train your successors at nuclear power plants. Nuclear power plants are dark and hot. Because you wear protective masks, you cannot speak to each other. You communicate by gestures and hand signals. You cannot transmit your skills easily. Additionally, the more skilled you are, the more quickly you reach your annual allowable exposure level.

Some people say that we do not need experienced construction workers as long as inspection is done thoroughly. But the regime of inspection itself is problematic. In Japan inspection is done after the plant is completed. Inspection is more critical during the process of construction. Current government inspection only consists of listening to manufacturers' and construction companies' explanations and checking required documentation.

Only when nuclear power plant accidents became more frequent was a cabinet decision made to allocate an operation management supervisory officer at each plant. Even in a critically serious accident in which the emergency core cooling system (ECCS) is set off at Tokyo Electric Power Corporation's Fukushima Nuclear Power Plant, [national newspaper] Yomiuri Shinbun reported that the plant's operation management supervisory officer was "completely unaware of the accident." Why wasn't the official informed of the accident? That is because the electric power company knew that the official is a complete amateur. In the midst of a frantic crisis situation the company did not have time to explain to the official what had happened as if they had had to explain the accident to a child and did not allow the official to enter the site. He was left uninformed, and he did not know anything.

Japanese nuclear power plants have caused astonishingly serious accidents so frequently, accidents equivalent to the Three Mile Island accident and the Chernobyl accident. In 1989, the incident at Tokyo Electric Power Company's Fukushima Dai-Ni Nuclear Power Plant involved the crumbling of its recirculation pump. This was the world's first accident of the kind. In February 1991, at Kansai Electric Power Company's Mihama Nuclear Power Plant small pipes broke and radioactive substance was emitted to the air and the ocean directly. Water containing radiation from the reactor also flowed into the ocean and was about to cause the empty reactor to start heating itself. The multi-staged safety valves that Japan is proud of failed one after another, and a veteran worker who happened to be at the site that Saturday made a quick decision to stop the leakage manually. A critical incident with potentially global impact was averted. The cause of the accident was a simple construction error.

Radioactive substance comes out from those tall chimneys of nuclear power plants. Radioactive substance falls over local residents, and they are exposed to radiation all day long. I once received a letter from a woman who was 23 years old: "I found a job in Tokyo and fell in love with someone. We decided to get married. We even exchanged betrothal gifts. But suddenly our engagement was cancelled by my partner unilaterally. He told me that I had done nothing to blame. He said he wanted to be with me. But his parents told him that I had grown up in Tsuruga, Fukui Prefecture and had spent ten-odd years there. He said that women living near a nuclear power plant have a high chance of giving birth to children with leukemia. It would be too much to his parents to have to see their grandchildren sick with leukemia. That was why he said his parents had asked him to stop marrying me. Did I

do anything wrong?" I have heard so many stories like this all over the place.

I once gave a lecture sponsored by a teachers' union in the Town of Kyowa, Hokkaido, near Tomari Nuclear Power Plant. I solicited questions after my lecture. A second year junior high school student raised her hand. She said, "All of you, grownups, who are here just want to look good. I came here to see their faces. What kind of face are they showing? Those grown-ups who are here pretend to be activists concerned with pesticide, golf course development, the nuclear power plant and others things claiming that they are concerned about children. I live in the Town of Kyowa right next to Tomari Nuclear Power Plant and am exposed to radiation 24/7. I learned from books that there is a high probability of giving birth to a baby with leukemia in Sellafield, a U.K. town near a nuclear power plant. I am also a girl. I will probably get married when I reach marriageable age. Is it okay for me to give birth to a baby?" She was in tears while posing this question to 300 adults in the audience. But no one was able to answer her question. "We girls always talk about this among ourselves. We won't be able to get married. We won't be able to have children." Their teachers had no idea that students had these kinds of concerns today.

Everyone knows that a nuclear power plant accident is horrifying. Does that mean that they are safe as long as accidents are avoided? Do they count as peaceful uses of nuclear power? I don't believe so. As long as power plant workers keep dying from radiation and local populations are suffering, nuclear power plants are not peaceful.

CYNTHIA BOWMAN

Here's an American response, not guaranteed to be representative. I am a law professor at Cornell who became involved about two years ago in environmental law, both as a professor co-teaching a legal clinic in water and land use law and as an activist in my local community, which is an idyllic rural area facing the threat of widespread drilling for natural gas by a process called hydrofracturing, to break out the shale deep below our homes, farms, and parks and release the gas trapped in it. I knew nothing about either the science involved or environmental law when I threw myself into these projects. Perhaps that is why I have been constantly shocked by discoveries about the virtual failure to regulate dangerous industries and the control of regulators by the powerful industries in this area.

Natural gas, like nuclear power, is touted as a “clean” form of energy and a solution to dependence on foreign oil, global warming, and the like. Dig a bit deeper and you discover that although natural gas may be clean to burn, the process of releasing it from the earth is far from clean and poses huge dangers to the water supply, the environment, and the social and economic foundations of our communities. We are told that none of these dangers will come to pass because of the care with which the companies in charge will manage the process and the widespread regulations that will require them to do so safely. I quickly discovered that the very companies involved had managed to secure exemptions from the most important federal environmental regulations with respect to this industry, from the acts passed, for example, to protect a clean water supply.

I set my students to pour over the regulations that did apply and to enumerate the tasks required to carry out the proposed New York State regulations of the proposed gas drilling and to estimate the hours and personnel that would be necessary to do so. The tasks involved were clearly much more than could even theoretically be performed by the number of employees of the Department of Environmental Conservation, and in the next state budget, due to recession-imposed reductions, there were major cuts to the state resources that did exist. Simple-minded as it seems, releasing all those numbers to the local press led to a front-page story on the problem in the local newspaper, at a time when the public was just beginning to become aware of it. The students also wrote comments to the Department of Regulation on the proposed regulations. With a local group of activists, we arranged speakers, held demonstrations, contacted our representatives in Albany and Washington, wrote articles for the local newspapers, and fed information to the national press.

In New York State, this growing awareness came in time to prevent any licenses being issued to the drilling companies, delaying final issuance of the regulations, and leading to a temporary moratorium on the process. In our neighboring state, Pennsylvania, by contrast, the companies had gone ahead with drilling before anyone became aware of the dangers, that is, until people began to report that their drinking water had become unsafe to drink – indeed, that it was possible to hold a match to it and light a fire. Photographs of what the gas drilling has done to the beautiful rivers, valleys and forests are appalling.

I’m saying all this just to explain why I was not surprised to read the account Professor Kasuga circulated, although I was at the same time horrified. Until profit-making corporations can genuinely be held accountable to the public,

not just after an accident but before and during construction, and until regulatory agencies are genuinely independent of the industries they are meant to regulate, I don't think that one can ever speak of either nuclear energy or hydrofracturing as "safe" or "clean." I personally am not hopeful that day will come, at least not soon, and think it is essential not to proceed with either of these forms of energy, no matter how much foreign oil they may be able to replace. Until alternate forms of energy have been developed, there is no answer except to reduce our energy consumption substantially.

The natural gas companies take out full-page ads on an almost daily basis in the New York Times, saying how natural gas is the answer to all of our problems, the clean energy of the future. These ads invariably feature a picture of an attractive young woman, usually African or African American, and perhaps a child. Money prints ads, so they will never include the dilemma of the young women described in the excerpts, who have come to see themselves as unmarriageable, never to give birth to their own children because they lived in the vicinity of a nuclear plant without even knowing the dangers. And we certainly cannot trust the information provided to us by the companies or our governments. This places upon us a heavy responsibility to acquire and analyze information on our own and to disseminate it widely. I've been reading, and demanding explanations of, a lot of science lately. In short, I agree with Prof. Kasuga about the typical American response but I hasten to add that I am far from certain that these efforts will be successful in the long run. As human beings of conscience, impelled by the disaster that is affecting the lives of so many people in Japan, we don't have any choice but to try, do we?

GRACE GUO

I am from Taiwan. Ever since March 11th, the local media and all kinds of networks have been reporting as well as discussing the Japanese nuclear disaster, civilian and government reactions after the disaster, and comparing Taiwan's media and Japanese media in terms of media coverage, etc. The whole society seemed very concerned about the situations of the neighboring country Japan. I would like to share two points first. First of all, I want to start with Professor Kasuga's mentioning of the attitude toward Hirai Norio: uneasiness and distrust. Hirai Norio's document has also become popular in Taiwan, but there is also plenty of suspicion that the document was a 'fake.'

Anyways, the attitude toward this story, I think, has shown our (even though we too are experts in some fields) uneasiness toward "so-called" high-tech professional fields, and our distrust about regulators. Secondly, take nuclear power as an example, could we discuss the issues between "pros" and "cons" with the help of "sufficient information and judgment"? Could we not be kidnapped by the two ideologies that have been pushed to extreme dichotomy, that is, cleanness and prosperity, etc., which are represented by "supporting nuclear-powered electricity," and progress and love of nature which are represented by "opposing nuclear-powered electricity"? Or, is it simply not possible that the presumption that I have brought up, i.e., "sufficient information and judgment," would exist in the debate on the kind of nuclear disasters?

NAOKI KASUGA

Thank you, Professor Bowman, for your immediate response. I want to express my utmost respect for Professor Bowman's research and outreach activities. I've shared the link to Mr. Hirai's website because I wonder why Japanese scholars who are familiar with technology and nuclear energy – both in the social and natural sciences – avoid spreading this information. I think it's odd to see them pressuring the authorities for immediate information disclosure, but concurrently – and confidently – trying not to raise others' fears. It is understandable that those trying to overcome the differences between the natural and social sciences are particularly sensitive about the power of information to construct reality. But in my view, there is something wrong with this approach. It's not about either the American or Japanese approaches. I can't share their conviction about their sense of reality. This may be true not only for those Japanese scholars, but also for some American and Chinese intellectuals.

I admit that I can't clearly explain my sense of discomfort with their conviction, but in what follows I would like to try to explain it as concretely as possible. One thing one needs to keep in mind in constructing an argument is that one should avoid a style that seeks simply to confirm one's own reasoning. Even if one's argument or statement is logically consistent, needless to say one must leave things "open." Nevertheless, though I'm exaggerating this a bit, many researchers are only engaging in a kind of discussion to reaffirm their expert positionality in this state of emergency.

I think that we (at least I) are every day facing a situation that is beyond imagination. For example, today (March 23), the authorities announced that

the radiation in Tokyo tap water was found to be twice the allowed limit for infants, and they requested that the public not mix it with infant formula. The Consumer Food Cooperative [a widely used grocery delivery service] is running out of bottled water and perishable goods. Mr. Hirai's comment raises familiar questions of risk and trust. Yet, what is "trust"? There are numerous definitions in the social sciences, but discussing or thinking about trust in unimaginable conditions requires asking ourselves once again what and how each human being believes. That in turn requires us to confront the nature of religiosity, science and conviction.

How can we decide what is trustworthy? For example, like many anthropologists, I was critical of the arguments of [atheist evolutionary biologist] Richard Dawkins. But I am no longer certain. He challenged those people who worshipped at church after the earthquake in Christchurch, New Zealand. Why do you worship a God who could not prevent the disaster? Alternatively, if God is not powerful enough to stop the disaster, in what sense do we consider him as God? (God and Disaster. Richard Dawkins.Net. 13.3.2011.An RDFRS Original). I've never sensed such a challenge from Dawkins' question ever before. Are contemporary scientists willing to confront religion head on? And what is our understanding science, anyway, and to what extent should we believe in it? This question is like a knife at my throat.

I also don't know what to think about the death of the young daughter of one of my informants in Fiji where I conducted fieldwork, whose father (my informant) rejected modern medical treatment for her due to his belief in witchcraft. I've long been spending my time engaging with debates in anthropology, science and technology... Yet, I now feel I have never asked myself what it means to "believe." In 1995, as a victim of the Kobe earthquake, I struggled with losing a sense of reality. This time, even though I'm not a victim, I'm facing severe confusion. If my postings are the products of my confusion, Professor Bowman's thoughtful and considerate response is probably a gift to me to recover my sense of balance.

CLARK R. WEST

Professor Miyazaki has asked me to offer a response to this thread. I do so both as a priest and as an academic who has studied religion for some twenty years. I am very moved by the questions Professor Kasuga has raised about the possibilities and threats re: trust in the areas of religion, science and public accountability of government officials. My most recent research

has been in the area of religion's responsiveness to the kinds of massive trauma currently being experienced and witnessed to in Japan and in people with close ties to Japan. As Professor Miyazaki has written about elsewhere, the category of hope is one that is regularly mobilized in such circumstances, and yet hope in the midst of trauma may look strikingly different from what religious (and non-religious) people expect. Thus, I am sympathetic to the kinds of questions and challenges Professor Dawkins raises--too often religion and religious narratives in traumatic contexts rely upon a rhetoric of nostalgia or naive optimism at best, to self-blame and enervating shame at the worst (see Saint Augustine for a classic Christian examples of both strategies).

More recently, western theologians influenced by psychoanalytic and sociological trauma theory have suggested that these classic strategies need to be replaced by ones more sensitive to what both Professors Kasuga and Miyazaki have pointed to as the confusion, epistemic uncertainty, and ambivalence ingredient in traumatic experience. Religious people are not given a pass from these conditions, as Dawkins rightly notes. Trauma inflected theologies are deeply sensitive to this epistemic situation of being 'in the middle' rather than beyond tragedy and trauma, and thus rightly reject the classic answers of theodicy highlighted in the Dawkins piece. Classic theodicies feel most often like a 'view from nowhere' rather than the response of an embodied subject deeply marked by ongoing woundedness. How to pray in such a situation thus becomes the crucial issue for the trauma theologian, and it is no surprise that prayer is the issue the Dawkins piece expresses the most suspicion of.

A number of theologians have recently suggested that in contrast to the dogmatic, doctrinally confident prayer Dawkins scorns, tentative near-wordless prayer is particularly concordant with the experience of trauma. Here we might find some strong resonance between Christian forms of near-silent meditative prayer such as one finds in the Eastern Orthodox tradition, and the Japanese Buddhist tradition of *shikan-taza*, just sitting zazen. Both of these forms of spiritual practice, interestingly, eschew words that could suggest a greater degree of clarity or epistemic confidence in a traumatic situation. Language exposes and makes one vulnerable to suggestion and in the traumatic situation needs to be handled with great care. Both zazen and hesychastic (silent) prayer seek to avoid running after restless, fleeting thoughts so common in the wake of trauma (through attentiveness and a steadfast letting go of thoughts in both zen meditation and in neptic practices in the hesychiast tradition of eastern Christianity). Both seek a restfulness, or stillness of the mind, not as an escape, but as a

deeper attentiveness to the heart's wellsprings for compassion which lie deep within a troubled mind. Neither practice, interestingly, requires strong dogmatic commitments, nor even much 'god-talk' which can be quite problematic in trauma settings.

Finally, for the scientific mind, the possibilities of these kinds of spiritual practices for healing are intriguing. As Yoshiko Suzuki, a Japanese grief counselor currently working in Tokyo at a counseling center points out, grief and trauma along with its physical and psychological effects are scientific facts, and 'whether you like it or not, whether you admit it or not, your brain has been affected and we need some help.' [see <http://www.npr.org/2011/03/25/134821398/grief-stricken-japanese-reluctant-to-open-up>] Much recent scientific research has also been done on the effects on the brain of long-term practitioners of various forms of meditation practice. Though results are not conclusive, it is certainly possible and credible to believe that such spiritual practices may well be one way the human person copes with and even resists the most destructive effects of trauma. One might turn to the work of the great American psychologist William James here, whose own studies as a doctor, of mystical experience, were full of similar insights as to the measurable effects of spiritual practices on the wounded soul.

TAI-LI LIN

Follow me but trust me not? "At present I think I'll still follow the advice given by the government," a woman replied when asked by Taiwanese media whether she would evacuate from Tokyo two days after the earthquake. Japanese have been praised for their orderliness and self-control, and there's no exception while encountering the tsunami of 11 March 2011 and the radioactive leak at Fukushima thereafter. Fukushima has raised panic as well as protests elsewhere in the world. What many people find exasperating is the reluctance of TEPCO (Tokyo Electric Power Company) to inform in the beginning what exactly happened inside the nuclear power plant at Fukushima. Was the relevant information regarding the power plant, such as sustainability to disasters, accessible to common citizens?

I visited the website of Japan Atomic Energy Commission (JAEC, http://www.aec.go.jp/jicst/NC/about/index_e.htm), the competent authority of the Cabinet. There is plenty of information to be disinterred thereon, but is it what people really need? According to Article 3 of "Act on Access to Information Held by Administrative Organs"

(<http://www.japaneselawtranslation.go.jp/law/detail>), any person may request disclosure of Administrative Documents pursuant to this Act. Under the request, the administrative organ concerned has the obligation to disclose the Information which is found necessary to be disclosure in order to protect a person's life, health, livelihood or property. (Subparagraph (b), Section (i) of Article 5) The Exclusions are listed as Section (ii) and (iii) of the same Article, which could be unsurprisingly argued NOT to disclose the information regarding the sustainability to earthquakes of nuclear power plants by JAEC (or TEPCO). Is the Government free from the obligation to disclose to the general public about the potential danger power plant even without prior request? Is government's judgment still to be trusted as before after Fukushima? Perhaps we had better take the burden of judging for ourselves.

GRACE KUO

As for the story of Hirai Norio, I would like to add two more points about which I would appreciate comments. The first point is about the relationship between the use of energy and the project of modernity. To supplement debates about the (dis)continuation of nuclear power plants (of course, I think that all of us would agree that steering clear of the use of nuclear power is the safest way forward), I suggest that if human society seeks to become nuclear-free in the future, we should thoroughly rethink and redefine the symbols of 'prosperity' and 'civilization' associated with modern life. Examples include the colored lights that hang around Christmas trees, those that adorn leafless trees in the winter, and those that shine from sleepless city-views of large Asian cities (e.g. the lights seen at lively and bright night markets). These have become part of our life and serve as embodiments of a warm and encouraging modern civilizations. While discussing energy policies and moving toward nuclear-free countries, should we transform how we have long imagined 'prosperity'?

The second point is about a situation mentioned in Hirai Norio's story, in which girls in irradiated regions complained that they were unjustly discriminated against so that they could not get married. Around 2000, it began to become increasingly common for men in Taiwan to marry women from the Southeast Asia. For a long time, these marriages were seen by many as 'buy-and-sell marriages' in which women sought to marry in Taiwan for monetary gain, while men sought Southeast Asian brides because their social and economic statuses were too low to marry Taiwanese women. Many prejudices related to gender, economy, and social

class are woven into these perspectives, including people's ignorance (or unwillingness to learn about phenomena they deem unnecessary to know about) about forms of international marriage. All of these prejudices, I think, are represented in a 2006 statement by one Taiwanese legislator:

"Vietnamese brides have 'poison' in their bodies because herbicides polluted their land during the Vietnam War, therefore Vietnamese brides have the remaining poison in their bodies. Thus, males from Taiwan should not be allowed to marry Vietnamese brides, otherwise they will give birth to a lot of abnormal children which in turn will become Taiwan's burden."

As soon as this comment was made, a great number of women's organizations spoke critically of its inappropriateness. As time goes by, demographic research conducted in Taiwan has begun to show that the children born of South East Asian women are healthier than those of Taiwanese women because the latter generally wait until an older age to have children. Today, the trend in Taiwan's immigration policies tends toward goals of 'openness,' 'inclusiveness,' and 'multiculturalism.' Further, allegations that 'Vietnamese brides contain poison' have disappeared among official and/or civil cultural activities. At the same time, the labor and fertility that has been brought to the country through these Southeast Asian women has indeed become indispensable material power for the families of male Taiwanese.

NAOKI KASUGA

I have read all of your comments with great interest. The nuclear power plant incident that has followed the earthquake reminds the world again of the importance of information. As I reflect on this, I can't help but think about how difficult it is to find credible and grounded information in such heavy and difficult circumstances. Reverend West's comment was very enlightening to me in this regard, as I sensed the thorough grasp of modern theology in his sympathetic response to the questions and objections of Professor Dawkins. I recognized that, perhaps more than those in other fields of study, theologians have candidly shed light on the radical questions that natural sciences like evolutionary biology, the cognitive sciences, physics, and mathematics impose on human society.

I think that the current nuclear power plant incident is not only causing us humans to question our very trust in the natural sciences and our methods of reasoning and rationality, but also questioning "truth" as our absolute value, the nature of "facts" themselves. At least in my fields of study, I think,

we have cleverly avoided such challenges by shifting from critiques of essentialism to a rising interest in constructionism. What is sought right now is a way to produce knowledge that can endure the practice of self-questioning, as we continue to question ourselves as we hold onto the pursuit of "ultimate evidence." Reverend West's concept of silent prayer presents us a powerful window into how the intellect could come to bear this challenge.

NAOKI KAMIYAMA

It seems that many people in Japan have read "Hirai's Comment" which Professor Kasuga posted on this discussion wall. My friends have also sent it to me by e-mail. When I read this piece for the first time, I couldn't help recalling some of my own personal experience. Also, it became an opportunity for me to think more broadly about the responsibility of scientific technologies and private corporations. As for Professor Kuo's first point, I immediately agree with her thoughts on reconsidering our energy sources and current lifestyle. But we also need to take into consideration the North-South problem, the discrepancies between developed and developing nations. On the one hand, we find an argument to reduce the amount of energy consumption to avoid a possible energy shortage, and on the other hand, there are also nations and societies which demand the development of their economic power prior to reconsidering their energy consumption patterns. Because fossil fuel is cheaper and easier to process, developing nations and those of lower economic capacity have an incentive to use it over more expensive, cleaner technologies. It is thus more feasible for wealthier developed nations to bear with the inconvenience that arises as a result of the reduction of fossil fuel consumption.

However, if these wealthier nations see capitalist economic expansion as their primary concern, the reduction of fossil fuel consumption could bring about unfortunate consequences for those developed nations by giving them a competitive disadvantage in certain manufacturing industries. The residents of developed nations presently have more leeway because they live in wealthy nations, but I believe their tone would change if they were to fall behind the others. Relative economic wealth might not correlate directly with personal happiness, but I think that many of us have to admit that there are overlaps between wealth and happiness. At this juncture, can we imagine an economic and social system with restricted competition? It can exist as a kind of utopia. However, the limits of our accumulated knowledge discourage us from undertaking practical economic and social initiatives,

those that seem necessary in a system in which the weak become victims of the strong due to market function and human greed. This can also be called "incentive," and I think that we need to discuss what would be the ideal level of market competition.

In response to Professor Kuo's second point, I'm writing about my own personal experience. I was born in Nagasaki in 1961 (16 years after the dropping of the atomic bomb). When I was seven years old, I moved to Fukuoka with my family. On the first day when I was going to go to my new elementary school, my mother told me, "Don't tell anyone that you were born in the Japanese Red Cross Nagasaki Genbaku Hospital, and don't tell anyone that your mother carries atomic bomb victim certificates (*hibakusha techo*)." As a seven-year-old child, I didn't think that I needed to say such things to anybody, and told my mother, "I won't." What Mr. Hirai's comment reminded me of was the expression of my mother when she was much younger than I am right now. However, I haven't faced discriminations based on my place of birth so far. I can't ask my mother what she would think about the incident in Fukushima because she passed away a year ago. But since my father worked for a regional electric company for a long time, she might have been sympathetic to the workers of the electric company and would not have said negative things about the nuclear power plant. However, when I read a news article in which the schoolteacher asked the parents of an elementary school child from near the Fukushima nuclear power plant whether or not they would hide that they were from Fukushima (and no children sat next to her after the parents responded not to hide it), the story felt very personal to me.

When I was in elementary school, it was just around the time when the US stopped their hydrogen bomb tests. But it was also still around the time when the Soviet Union and China were still engaging in hydrogen bomb tests (though those were conducted underground). Therefore, when it started raining on the way back home from school, my friends and I used to run, laughed and sang, "We will go bald if it rains on our head" (though none of us really thought that we would become bald). Also, after the current incident in Fukushima, since the media strongly criticized the liability of the electric company, I heard the rumor that the electric company was vandalized and the children of the company workers were bullied (I'm not sure about the validity of those news stories since they were not broadcasted, nor have I personally heard it from the victims). This news also struck a very personal chord with me because I too was a child of an electric company worker. I wonder if it is a human instinct to ruthlessly create such boundaries between and within groups. If such incidents are really taking

place in our educational institutions, I have trouble thinking clearly about what would be the best response.

I also thought about the meaning of “self-sacrifice” in relation to Professor Kasuga's comment on leadership and Professor Lhuillier's comment on language. What I'm writing below includes what I heard from others and I have not confirmed the accountability of the information. The leaders of the industry I'm working for – including those of my own company – are predominantly British and American. As the information on the nuclear incident has continued to circulate since just a week after the earthquake, I heard that the “leaders” of my industry evacuated to the Kansai region two weeks after the earthquake and directed the company remotely via phone and e-mail.

Some of the international corporations revised their risk management strategy, and moved out from Tokyo to Osaka or Nagoya. In this process of corporate relocation, there were numerous discussions on the question of “whether to evacuate or to stay.” In light of this, I paid attention to how many Japanese businessmen suggested that “If the leaders leave, their companies will lose the trust of their employees and their customers.” I thought that there were some rational reasons to relocate their business to the Kansai region because all were uncertain just how dangerous Tokyo was, and it was not clear whether or not we could trust the government's information. Further, the train schedule in Tokyo was chaotic and there were scheduled blackouts. Finally, it seemed very possible to work for a couple of weeks via e-mail or phone. However, I sensed that some of the Japanese workers “viewed the organizational order with pride and hated the idea of considering individual happiness over the collective body.” (I'm sorry that I'm writing this based on limited information).

I think that there were significant differences between the Westerners and the Japanese even if the definition of self-sacrifice was to “sacrifice oneself to save a society or many people.” At least in Hollywood movies, there are possibilities for an individual to give up his/her life to save the life of millions. However, I don't think anybody will praise those taking their lives for organizational pride. Anywhere in this world, few would respect those who immediately run away. However, if their decision would entail the best consequences, I think we will probably respect their proper decision-making ability.

In most cases, the expatriate company leaders allow their Japanese employees to either relocate to the Kansai region with them or to be on call

at home. In Japan (even though I'm hesitant to generalize this), I thought Japanese leaders expected to stay long enough "to be the last to leave." It seems that the Japanese wanted their leaders to stay in Tokyo until they could confirm that nobody - including the workers and the customers - was left behind. I don't think that all Japanese people should stay in Tokyo.

I heard a story that an owner of a medium-size financial corporation suspended a meeting right after the big earthquake, told his employees to take the day off from work, ran down the stairs faster than anyone else, and even got angry at an employee when he noticed his driver was not there to give him an emergency evacuation. I think that the fact that there are such rumors spreading around indicates how much we dislike such scenarios. But there is also an opposite example. I heard that even though a Japanese worker of an international corporation was preparing to evacuate to the Kansai region because his Western expatriate manager did so (I hypothetically set them as Western expatriates but they could be the Italians or Turkish), he decided to stay in Tokyo in the end because the Japanese employees were extremely angry at their manager's decision to evacuate.

This story reminds me of an incident in which Japanese citizens were injured by an IRA terrorist attack in London. I'm sorry that I don't remember it in detail, but it was around 1994 when the IRA and the UK government had not agreed to a ceasefire (I think this incident has already been forgotten because I can't find much about it on the internet). I was living in London after being sent there by a Japanese brokerage company. The IRA used to engage in suicide attacks at the "White House" near my office, and used to set up bombs in a trash box. It was a serious problem for me as some of the workers in my office got injured by their terrorist activities.

The bombing was on an evening day in the city's financial district. It was the IRA's usual strategy to set up large-scale bombing in sparse areas during the weekends. Typically, their bombings lead to only a small number of casualties. However, I remember that the employees of Sanwa Bank were working over the weekend, and sadly over 10 people (I guess all of them were Japanese) got injured from the broken glass and other causes. When the IRA made their announcement, they stated that they did not think that the Japanese were working over the weekend. What I thought at that moment was that it must have looked strange to the British and the IRA that the Japanese were working in a high risk place that the British couldn't even get close to. One might say this incident would spark questions about whether or not the "foreigners" had appropriate information, as if they have different patterns of behavior and judgment standards. I think the Japanese

feel more uncomfortable not going into work alongside others than facing the fear of terrorism.

In terms of information sharing, (I'm sort of joking, but) it seems that some of the Westerners in Japan exchange information mostly in the changing room of the gym of the American Club near the US Embassy. Even if some of them have Japanese spouses, it is not strange for them to find the information from these other sorts of social networks more important. While I lived in London for five years, I didn't have a British friend who I could expect to provide me with information about how to respond to an emergency. I think the evacuation was an appropriate decision because it could have had a significant impact on people in business once they decided that they might be in a weak position in terms of available information. I was sort of horrified by the fact that the decisions of some Japanese changed those of other Japanese. I would like to discuss it more because I think my fear is related to what Professor Lin pointed out as "the orderliness and self-control of the Japanese."

I guess there is something intangible here, an unconscious will to try protecting the organizational order (otherwise they will be stressed out) when they would be reacting to protect their health or lives as an individual. Such urge can be interpreted as the traditional group consciousness to protect a relatively narrower sense of a societal order as it is understood in Japan: "There is no society but interpersonal relationships in Japan." However, I rather think that there is a value standard which treats "individuals' lives as relatively lower" than what they might actually be worth. A surviving kamikaze pilot and a novelist, Toshio Shimao, wrote in his novel of the "strangeness of not feeling the strangeness" of volunteering to give his life over as a weapon. I'm not saying that it is appropriate to engage in looting in disaster-stricken areas-- it is rational and appropriate to have social order. However, I find that the value judgment steering this case is not an ideal thing to be considered somehow universally righteous (I'm sure there are discussions about whether or not there is a such thing as universal righteousness), but rather something intangible that must be protected even if it would be dangerous for the individual.

It's not strange for a leader to stand in front of an evacuating group, nor necessary for them to be the last one to evacuate the disaster site. Also I can't currently find any words to express the unfortunate feelings of those who gave up evacuating even though they personally thought that it was an appropriate course of action. I agree that the Japanese have demonstrated a high moral standard in their response. I also think that we can praise the

value judgment that guided their decision because it was connected to a good consequence. I'm not saying that the psychological stress of those who engaged in the orderly response in the disaster area corresponds with the sort of strangeness that the Kamikaze pilot had faced. However, I thought that such a standard would lead to criticism of those who decided to leave their posts in Tokyo due to the Fukushima Nuclear Power Plant incident and the confusions of public transportation.

I saw an interview of victims who were staying in a shelter, eating only a few rice balls a day. This victim responded to the media, "My relatives in the other town called me to evacuate, but I can't move out from this place by myself." I assumed that the victim must have wished to look for his/her missing family members, could not leave the farms or livestock behind, or wished to repair their damaged house. Yet, I must confess that I find it strange that I'm sympathetic to the response, "I can't move out from this place by myself (even if, at the end of the day, nobody is stopping me)."

Lastly, I never doubted the potential for the development of nuclear power plants to reduce CO2 emissions. However, based on the knowledge which I have gained from the incident in Fukushima, I started to feel strongly opposed to the use of nuclear energy. As Professor Bowman pointed out, I learned that I can't make any correct judgment without proper knowledge. The knowledge and information weren't enough for voters to make their decision. I understand that nuclear energy development was led by the government rather than an electric power company. The biggest reason for its development was to diversify Japan's energy sources after the oil shocks of the 1970s. However, I think nuclear energy is far more than humans can handle. It always needs a cooling system and it produces far more energy than we can consume, thus causing enormous energy loss. And once the cooling system gets damaged, the nuclear system goes out of control as it starts producing the unnatural chemicals that can damage our health for a long time.

From the current incident, we could learn how difficult it is to stop the disaster or to collect the right information on this matter. I see Mr. Hirai's comment as the resource to support my opinion. Moreover, it is not easy to process used nuclear cores. It was reported that the new nuclear waste disposal site in Finland would "last for 100 thousand years." However, if such a facility really requires us to protect ourselves from its dangerous nuclear core for a period of 100 thousand years, it is reasonable to suggest that this sort of energy resource is currently inappropriate to use.

Until recently I've never thought about why nuclear weapons are "worse" than regular weapons. I thought there was little difference between killing a person with a knife and killing many with a nuclear weapon: indeed the intentions behind both of the acts concern the will to take others' lives. However, I've begun to think that the major difference between a knife and a nuclear weapon is not reducible to the deaths it causes. It is deeply concerning that a nuclear weapon is capable of wiping out entire ethnic groups or communities in just a moment (I say this probably because I read Foucault). This nuclear power plant incident has (probably) destroyed the livelihood of more than 100 thousand residents in just a second.

Even though I see this as extremely destructive, the farms and the factories remain there just as they used to be. However, it has become a place that residents cannot easily go back to and won't be able to inhabit. Of course, a nuclear power plant is not a weapon and its intended use is completely different from that of a nuclear weapon. However, even though the total number of the dead is different from a nuclear bomb explosion, the consequence is quite similar. I think this technology far exceeds what we can handle. My grandmother told me that the amount of discrimination in Japan dropped drastically after the first atomic bomb explosion. In western Japan, for instance, there existed strong discrimination based on peoples' occupations or places of residence, and she said that it dissolved significantly in Nagasaki after WWII.

But the atomic bomb also destroyed or ended so many individual lives and communities. I guess, in some way, it was good that this event triggered the end of a tradition of prejudice, but of course I don't want to consider this experience to be a light of hope. Moreover, even though it was a government entity, the management of a nuclear power plant is generally administrated by a private corporation. It is an obvious problem that we have private corporations managing nuclear energy in ways we are unable to control. And behind the problem of information transparency, the actions of the electric power company might be constrained by the will of its stockholders (plus there are loopholes in the Act on Compensation for Nuclear Damage).

Indeed a model of corporate capitalism has supported the prosperity of developed nations so far. However, I think that the innovation and use of technologies which extend beyond our control such as nuclear energy have shown to us the contradictions internal to this system. From this point forward, we will also notice contradictions in a regulatory system in which "a law determines how we define our lives" in other fields such as

biotechnology. On the other hand, years after Winston Churchill said, "democracy is the worst form of government, except for all the others" that have been tried, some economists (such as Raghuram G. Rajan and Luigi Zingales) have suggested that "capitalism is the worst form of economic system except for all the others" that have been tried. For them, it is our job to maintain and save capitalism.

But just as militaries wish to obtain stronger weapons, I think corporations seek to obtain stronger technologies. Just as we need global information exchange, legal regulations at national level, citizen monitoring by what has been called the "New Public," and voluntary corporate ethical management patterns springing from movements such as CSR, we also probably need an education system that challenges us to ask whether the use of dangerous technologies will lead to an unsustainable future. Even though full understanding of the complex fixtures of economy and society extend well beyond our imagination, the need to create frameworks to understand what constitutes proper courses of action in these arenas remains. Even though it seems infinitely complex to question how to balance scientific technology and corporate activity, I believe that we should not give up on working toward this goal.

A Grand Coalition for a Rise in the Consumption Tax is the Only Way

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YUJI GENDA “A GRAND COALITION FOR A RISE IN THE CONSUMPTION TAX IS THE ONLY WAY”

An enormous amount of support and assistance for regions and people affected by the Tohoku-Kanto Great Earthquake is pouring in from all over the country and the world. In addition to the donations of goods, numerous calls for monetary contributions are underway. For sure more volunteers will head to affected areas once the road condition improves. All of these are

dearly needed efforts for now, and I forthrightly express my respect to those actively engaged in relief work.

But there is something those of us who luckily escaped the disaster and are able to continue to live a fairly safe life ought to ask ourselves. Is such relief work enough? Does this mean that those of us who live in Japan have fulfilled our responsibilities?

The reconstruction of our country will require a tremendous amount of money, labor and patience over a long period of time. For sure we need to avoid imposing the burden on the victims of this disaster. In order to accomplish the reconstruction work, we need to secure stable financial resources. However, considering Japan's already critical financial state even before the earthquake, we no longer have room for this.

What do we need to do? The only way to reconstruct our society is to raise the consumption tax rate decisively. This will only be possible if the Democratic Party of Japan and the Liberal Democratic Party spearhead the finding of common ground and facilitate the formation of a grand political coalition as quickly as possible.

Our political leaders ought to use the strength of this coalition to explain to the Japanese people with passion and sincerity why the consumption tax needs to be raised and to push this much needed tax reform forward. I believe that the Japanese people will understand the need for collecting the funds required for the reconstruction work ahead on a continuous and sustainable basis in the form of the consumption tax. The consumption tax may be waived for those regions affected by the earthquake. I expect our society to be united in the name of renewal.

Some may ridicule my proposal: "You are simply taking advantage of the current confusion." Perhaps behind the scene clever politicians are steadily working toward such a coalition. But now is the time for a younger generation of politicians with a sense of a mission to voice their views in a more transparent fashion and unite themselves across different political parties and persuasions. They should use the momentum they may be able to create to lead us forcefully so that we may overcome the current crisis.

The raising of the consumption tax is a difficult task politicians alone have not been able to accomplish due to their preoccupations with elections, approval rates, etc. As a result, Japan is near bankruptcy. If this tax reform is achieved through a grand political coalition triggered by the earthquake, it

would be a monumental achievement in which we confronted this severe experience head-on and overcame the crisis on our own.

In my view, taking decisive action in order to overcome difficulties is the only way to repay the dead. Now is the time to chart a route toward financial reconstruction. If we miss this opportunity, reconstruction will be impossible.

This is the moment of decision. Politicians may say that now is not the time to think about these things. We are preoccupied with the disaster. But before long we will have to choose to create one coalition government or another. Timing is everything. We are running out of time. A coalition government is the only hope for Japan.

NAOKI SAKAI “ON NATIONALISM”

Disaster rarely affects people's lives evenly, as even the slightest differences in individual circumstances and environments may ultimately determine whose lives are saved, whose are destroyed, and whose are lost. It is also common for disaster survivors and those who are able to live their lives in safe places to develop a sense of guilt over the fact that they have survived or have managed to escape from disaster. Perhaps this reflects a rather paradoxical fact of human life: that only happenstance separates survivors from victims. Some people happen to survive while others happen to die, and often no reason can ultimately be found as to why one person died while another is left alive.

We all know that war and disaster force us to confront the contingency of life and death, and that such traumas can spark what is known as “survivor's guilt.” In Japan, this paradox was confronted en-masse during and after the Asia-Pacific War. Thus, it is understandable that the Tohoku-Kanto Great Earthquake has awakened memories of the past total war in a number of Japanese people today. It is also perfectly natural that some wish to extend the boundaries of “we” to include the national community and to express “survivor's guilt” in terms of the nation-state as a whole. I have no intention of criticizing this idea as unnatural. In any case, this disaster has once again confirmed that we humans have a rich capacity to create community.

People have become particularly creative in their efforts to offer assistance not only to people from their hometowns, but also to total strangers. Many are trying to help others across social classes, geographical regions and national boundaries. This is why we never lost hope in the social conscience

of the masses despite all the problems that volunteerism entails and the extremely tragic nature of this disaster. Unlike those in poverty-stricken areas of Africa and Asia, one does not get an impression that victims of the recent earthquake have been ignored or left unattended. One of the possible reasons for this is that Japan is a member of the so-called First World: it is a quintessential information society entwined in myriad transnational networks. Therefore, one can easily expect some Japanese intellectuals to use this disaster as a chance to turn adversity into opportunity, to seek a national political transformation that would be unimaginable under the political regime that existed prior to the disaster.

Nevertheless, I have this lingering sense of being left unpersuaded by Yuji Genda's proposal. It is as if it keeps getting stuck in my throat and I am not able to swallow it. As I begin to discuss this feeling, two stories come to mind—one invoked by a momentary scene from a film, and the other about a Japanese cabinet member's recent resignation. The first episode can be found in the opening scene of Clint Eastwood's "Letters from Iwo Jima." As the scene begins, the screen shows what looks like a dark night sky. As the camera pans out, however, it becomes clear that the blackness is in fact the "sands of Iwo Jima." After panning to waves breaking on the shore, the camera moves to a panorama of the Pacific Ocean.

The scene I wish to describe comes right after this and lasts merely a second, a scene that depicts a cenotaph, facing its back to the Pacific Ocean, that commemorates the soldiers who fought in the battle (硫黄島戦没者顕彰碑). We can say that the entire theme of "Letters from Iwo Jima" is captured in this momentary image of the cenotaph. As the monument rests on the US-controlled island, the engraved script - in kanji, not Romanized script - seems to float in the dark. Then, right below the nine kanji, there are four more characters: "Kishi shin suke sho" (岸信介書) [written by a former member of the National Diet, Shinsuke Kishi]. This cenotaph was made not only to commemorate the fallen, but also to preserve the writings of a survivor.

When I saw those four letters, I felt a reflex. I must say that it felt like a vomit reflex. Shinsuke Kishi was an extremely famous bureaucrat-politician. He was the father-in-law of Shintaro Abe, the Secretary General of the national LDP and the national minister of foreign affairs, and was the grandfather of Shinzo Abe, Japan's Prime Minister between 2006 and 2007. He was a reformational bureaucrat who worked toward the establishment of Manchukuo before WWII, was the Minister of Commerce under the Tojo administration, and was one of the national leaders who planned and

directed the Great East Asia Co-prosperity Sphere. Of course, he was convicted as a Class-A War criminal following Japan's defeat, and spent three years in Sugamo Prison. Once US foreign policy changed 180 degrees in response to the rise of communist powers, he was freed from prison.

Next, he reinvented himself as a player in anti-communist propaganda campaigns and a supporter of the anti-communism policies of the US government. These efforts culminated in his role as a founder of the 1955 regime, and he became the Minister of Foreign Affairs, and later the 56th and 57th Prime Minister of Japan. It is not hard to imagine that Kishi, who was well-versed in the vision of the Great East Asia Co-prosperity Sphere, served as a crucial resource for American governance in East Asia. It was also a well-known fact– even though it was not reported much in the Japanese press – that Kishi and his brother Eisaku Sato were CIA operatives. Once the leader of the anti-US and anti-UK [campaign], Kishi became famous as a facilitator of American imperialism. As a consequence, several historians point out that protests of the ratification of the US-Japan Security Treaty in 1969 were partially due to the Japanese public's hatred of Kishi.

However, Kishi was one of the few sly old fox politicians who forged strong connections with American politicians during the post-WWII period. He was an exception-to-the-rule who could provide arrangements for soldiers' families, and did not hesitate to use this privilege [for his own benefit]. Thus, he was able to leave his name on the cenotaph as a survivor. Yet it is not an exaggeration to say that the Japanese soldiers in Iwo Jima practically died as [sacrifices] for the Tojo administration's Great East Asia Co-prosperity Sphere: they were the victims of Kishi and others' mismanagement. Despite the fact that he ordered the soldiers to "die" in Iwo Jima, Kishi is now commemorating the fallen as if he was the one to inherit their wishes. In other words, the ill-intentioned person behind the soldiers' death is now commemorating the fallen. By doing so, Kishi stole the position to inherit the wishes of the fallen, and I must say that, in doing so, Kishi successfully stole the names of the fallen soldiers.

I'm bringing up Shinsuke Kishi's wartime responsibility not solely to criticize the fact that survivors can often take advantage of the loss of others. What Kishi's expedient action shows us, I think, is something about the possible courses of action that survivors could take in response to the fallen, "to inherit their will" or "to commemorate their death." At end of day, I do not know whether the soldiers are happy or angry with the fact that Kishi made the cenotaph. Of course, they are not able to speak for themselves (死人に口無し), so [we] cannot criticize the survivors on behalf of the fallen. What we

have to reflect on instead is actions which might use the plight of the deceased as tools to support or oppose preexisting interests. Understandings of the relationship between the living and the dead are typically derived from the religious sphere. But even secular societies uphold an ongoing relationship with the dead that is inherited through nationalistic rhetoric. It is a commonly thought that the idea of a national community has been founded upon a mythical continuity of the dead. Also, it is often discussed how such secularized religiosity has historically led to so many tragedies.

What concerns me with regard to Professor Genda's suggestion is his lack of attention to the pseudo-religious nature of nationalism, and how he naturally accepts the mythical nature of a national community. I cannot say that the cenotaph in Iwo Jima commemorates only Japanese soldiers, as its purpose is to commemorate all of those who lost their lives in Iwo Jima, Japanese and American soldiers alike. However, when we query the details of the "fallen Japanese soldiers," we immediately find this to be a difficult case. When Professor Genda asked us "Does this mean that those of us who live in Japan have fulfilled our responsibilities?" I do not think that he paid due consideration to the pseudo-religious nature of nationalism.

I must say that this statement does not do justice to the limits of nationalism that the cenotaph in Iwo Jima contains. Among the Japanese soldiers who lost their lives in Iwo Jima, there are hundreds from the Korean peninsula and other former Japanese colonies. Yet even though they were treated as second-class citizens, they were still recognized as Japanese citizens. The boundary of Japanese citizenship not static, but is always in a process of historical flux. After 1945, many of the families of the soldiers, including those of the fallen commemorated in Yasukuni, are no longer Japanese citizens. And historically, a national community doesn't last forever. Such a mentality that approaches the national community as an eternal or immortal fixture is the foundation of the pseudo-religious nature of nationalism.

Now I must tell you the other story, about the recent resignation of Seiji Maehara, the former Minister of Foreign Affairs. Maehara was forced to resign because it was revealed that he received political donations from a "gaikokujin" (foreigner) annually of less than 50,000 Japanese yen. According to the news reports, the donation was from one of his long-term friends who managed a Yakiniku restaurant (a Korean BBQ restaurant). It is formally difficult to defend him, because we must interpret laws exactly as they are written, and his friend, according to the letter of the law, was

indeed classified as a "gaikokujin." However, I see little problem with him receiving donations from someone who has lived in his voting district for long time, and I also don't find much problem with him giving a favor to the friend from his hometown. I don't think those are shameful acts for politicians. Still, I found it strange that I did not hear any commentary whatsoever from the media about whether applying the law literally would constitute racial discrimination, or about whether or not such a discriminatory law should be revised.

This response reminds me of the lack of public criticism in response to the comments made by the governor of Tokyo, Shintaro Ishihara, that "The Third Nationals" was racial discrimination. I guess it is our own philosophical decay to stay silent in the face of such daily discrimination. Professor Genda started his question, "Have we, those who live in Japan, fulfilled our responsibility?" However, wouldn't the manager of the Yakiniku restaurant be included among those "living in Japan?" What is the reason for connecting the concepts of "responding to the will of the victims" and the "citizen's" obligation? Professor Genda's suggestion is rooted in the standard nationalistic rhetoric of "patriotic shishi" (憂国の志士), so wouldn't such self-demarcation immediately make nationalism the justification of the tradition? Doesn't the logic behind forming a ground coalition to increase the consumption tax by using methods rooted in the pseudo-religious nature of nationalism worsen the existing racial discriminations in dangerous ways?

All of the residents who live under the administration of the Japanese nation-state, regardless of their citizenship, typically have to pay taxes, particularly the consumption tax. Even though Maehara's friend was not legally a part of this nation-state, he will still have to pay [the tax]. I agree that we have to unite to help the victims of the earthquake. However, it does not have to be through an appeal to a national community. Without the pseudo-religious nationalism, we can still form a community. Right now, isn't the intellectuals' obligation to find prospective ways to unite those with differences?

HIROKAZU MIYAZAKI "THE HOPEFULNESS OF A RESTED MIND"

I want to respond not to the substance of Professor Genda's proposal since I am not an economist but to his call for immediate action. It is widely reported that Japanese people responded to the disasters in a calm and

orderly manner. Some celebrated this as a manifestation of the well-known Japanese cultural commitment to perseverance and the social sharing of pain and burden. As far as I know, however, despite their surface calmness, many of my colleagues and friends are deeply suffering and mourning in the ongoing uncertain and unsettling situation. I believe this is true for many of us who are not currently in Japan.

Where is hope now? There is a widely shared urge to take action in Japan and elsewhere. This is definitely a sign of hope, an indication of solidarity in which people are willing to share the pain. But my research on hope points to a different kind of hope that I feel that we all need at this moment. That is the hopefulness of a rested mind. It is hard not to watch the news and search incessantly for current numbers (the death toll, radiation levels of all kinds, etc.). Indeed, information and knowledge are important tools for navigating uncertainty, and they are slowly becoming available.

In my view, the Japanese government is doing a fairly good job of providing the Japanese public with relevant information and knowledge and of assuring the public of the government's commitment to their safety. For sure, there is lingering doubt on the part of the public about whether the government is fully forthcoming in terms of critical information about radiation and food safety, but the situation is extremely fluid. Moreover, radioactivity is a contentious and little known territory to begin with. In other words, no matter what, certain knowledge is not something we can expect to achieve at the moment.

Anthropological and sociological research on the nature of hope I have led at Cornell University has shown something profoundly controversial in the midst of our collective urge and will to take action. Research shows again and again that hope cannot be reduced to either action or non-action. It is a particular kind of modality that is neither active nor passive. It often entails a temporary total submission or abeyance of yourself, even your capacity to act in and know the world, to other forces. That is, in confronting uncertainty, hope demands that we at least temporarily give up our constant quest for information, knowledge and certainty. It then gives us a moment of rest that our mind desperately needs for further thought and action. We all need a moment of rest particularly in the midst of this catastrophe so that we may mourn our losses together, pray for others who are suffering and have a rested perspective on the crisis of humanity we now confront together.

SHIGEKI UNO

Much like others who share my specialization in political philosophy, I believe that I need more time before engaging in discussions on the earthquake, tsunami, and nuclear power plant crisis. What I can say right now, however, is that this crisis is a political one, and that we find ourselves called to restore not only people's lives, but also politics itself. I will discuss three points in the following comment. First of all, I would like to call attention to criticism of the Japanese government's response to the disaster. It has been said that the government was slow and insufficient in providing information to the public as the events unfolded. And following the nuclear power plant explosion, countries and international organizations around the world began to question the government's handling of information disclosure. Thus, one could say that the credibility of the Japanese government has been damaged in the course of this disaster.

More critically, we can observe a tendency toward paternalism in the government's behavior. The most likely reason the government repeatedly insisted on the safety [of the nuclear power plant] is because it wanted to avoid fueling the anxiety and panic of the public. And it is no doubt that the reason behind its choice to extend the evacuation order was rooted in a deep concern about the fear and confusion that could rise during the evacuation process. In this case, the United States federal government would have likely taken a different approach to this issue. In American political culture, the individual has the right to decide how, when, and whether to evacuate a dangerous area. I believe that, [in a political context like that of America], the role of the government is to provide necessary information for all individuals [so they can make their own informed decisions].

When it issued the evacuation order, the Japanese government did not provide a clear explanation of their understanding of the incident, nor did it suggest what was considered to be the "worst case scenario" that could emerge from the disaster. I believe that the government likely thought that it would be sufficient to disclose only the results of their deliberations and decision-making endeavors because they felt assured that they were indeed making responsible decisions. We also can't deny that the public has a tendency to depend on the government's decisions, as they might operate under the assumption that they should follow the officials' judgments. Yet, sooner or later, individuals will find a desire to make their own decisions, and will demand that their government provide the information necessary

to make their own choices. We must pay close attention to whether or not this traditional paternalistic political culture will change.

Secondly, [I would like to point out] the unequal burdens imposed by the earthquake. As Japan is seen by many as a nation marked by social inequalities, it is critical to question how this disaster will effect existing disparities. Nevertheless, as soon as news of the earthquake circulated, rescue and aid initiatives were organized all over Japan, orchestrating ground logistics and volunteer activities. The deeper sense of national unity – the notion of “One Japan” that emerged – might be the only positive outcome of this unfortunate disaster. Still, we need to perceive this issue in a long-term trajectory. How will we raise the funds to recover the damaged regions? This poses the question of how we – as an entire nation – share the enormous burden of aiding the victims. If we make a mistake in [dealing with this issue], we will reinforce or exacerbate the existing unequal burden of inequality in Japanese society. Professor Genda's suggestion was a short response to this very problem.

This question is difficult because it contains two interconnected issues. It is no doubt that our most immediate imperative is to restore the victims' normal daily routines as soon as possible, and that the need to form organizations and secure financial resources for restoration is urgent. But this disaster should also lead us to reevaluate the legal and tax system to achieve a greater degree of fairness and equality in Japanese society. These two issues need to be discussed together. Moreover, we must not forget that there is a broader issue that transcends these two issues: without understanding the interconnection of such multifaceted problems, it is likely to be impossible to substantively change Japanese society. The damage of this disaster is devastating, and the victims' burden is enormous. In the short term, such unequal burdens will probably be exacerbated. We should initially start figuring out how to share their burden, and should later discuss how to regain the fundamental fairness and equality in the Japanese society. This will be a long process. However, without going through this process carefully, we won't have a real sense of equality in Japan.

And finally, recovery from this disaster is connected deeply to the future of Japanese society. Not only can we expect more discussion of energy issues, but we must also undertake a proper discussion of the future direction of our nuclear energy policy. I believe that this nuclear power plant crisis has made many Japanese citizens aware of how our society is built upon a very dangerous foundation. How will we come to deal with the expected long-term energy shortage? This is closely related to the challenge of reimagining

our way of living: this disaster is inseparable from political questions about how we must steer the future of Japanese society. This nuclear power plant issue is a symbol of Japan's "political absence." If we had ever properly discussed the risk of nuclear energy and then, after reasonable deliberations, formally determined it necessary in terms of a comprehensive energy policy, I could have accepted any outcome. However, in reality, it seems most people face this critical problem without realizing that they voluntarily chose nuclear energy.

The world has praised the victims' calm and orderly reaction to this disaster. However, it is a serious problem if we interpret their response as a sign that they are merely giving up or accepting the disaster as their fate. If we consider both the earthquake and the government's subsequent response as accidents, what we see is far from a restoration of politics. It is a kind of clouded thinking, one that does not mesh with a politics in which people are supposed to change society through voluntary means. This disaster, as a result, reconfirmed the deeply rooted paternalistic tradition in Japanese political culture. There is nothing more unfortunate than surrendering critical thinking to such political paternalism. If we can lighten the burden of the victims by sharing it with the rest of society, and if we can reexamine and develop a fairer and more equal Japanese society, then we will see a comprehensive "recovery" from this disaster.

CYNTHIA BOWMAN

I'd like to comment on Professor Uno's recent contribution, with much of which I agree. I disagree, however, with his assumption that a comparable accident would have been treated differently in the United States. Professor Uno posits that a political culture of transparency, individualism, and access to information would have meant that citizens in the United States would demand and receive prompt and accurate information from the government, on the basis of which they could decide whether it was necessary to evacuate or not. The conduct of the U.S. government during the 2010 BP oil spill suggests otherwise. It was very difficult for anyone, even relatively educated persons who keep up with the news on a daily basis, to figure out exactly how bad the disaster in the gulf was, and the real story did not come out for months.

The explosion that caused the British Petroleum oil spill (to date the largest environmental disaster in U.S. history) occurred on April 20, 2010, and the well was not capped until July 15, 2010, after immense damage had been

done to the economy and environment of the coastal regions. During the first few days after the explosion, both BP and the federal government estimated the amount of oil spilling at 1,000 barrels per day. By the end of April, however, independent scientists who had viewed satellite photos of the area told the press that the leak had to be at least 5,000 barrels per day, and the government switched to this estimate on April 28, over the public objections of BP. By mid-May, independent experts who had examined BP video at the request of the media suggested that the real figure was 10 times higher. By June 11, the government raised its own estimate to 20,000-40,000 barrels per day. The final official estimate, at the time the well was capped in July, was that the initial leakage had been 62,000 barrels per day, which had decreased to 53,000 barrels per day by the time it was stopped.

Internal BP documents showed their worst-case scenario to have been 150,000 barrels per day. But in December 2010, the company's lawyers were again contesting the government estimates of volume, arguing that it was as much as 50% less, because civil and criminal fines for restoration efforts would be levied on the corporation in direct proportion to the amount of the spill. In short, the U.S. public was faced with wildly differing estimates from day to day during the crisis; and if it were not for some persistent media sources (especially National Public Radio, which the Republican Party has been targeting for defunding), realistic estimates would not have been forthcoming. In the meantime, 320 miles of shoreline were affected; vast numbers of marine animals and birds were killed; and commercial fishing important to the lifeblood of people in the region was closed down.

After all the efforts to recapture the oil, it is estimated that 75% still remains in the gulf and may be toxic for decades, exacerbated by the effects of the chemicals used as dispersants. While I do not suggest that this was equivalent to the nuclear disaster experienced by Japan in 2011, the performance of the corporation responsible for the accident and of the government appear rather similar to that in Japan. So the political problem Professor Uno describes may be one that we share in important ways. My own diagnosis is that this problem results, in the United States at least, from corporate cooptation and control of the government and (for the most part) of the media, rather than from a tradition of paternalism or presumed deference to authority. I wonder if this is not so in Japan as well.

SHIGEKI UNO

I deeply appreciate Professor Bowman's comment. I think that it is very important to compare the 2010 BP oil spill and the present nuclear power plant incident in Japan. Further, it will be important to evaluate how corporations approached and pressured the media with regard to coverage of the nuclear disaster. There are a number of people who are presently dissatisfied with the ongoing media coverage. I have an impression that there is an amazingly small amount of objective media reporting on this incident, as they mostly broadcast the comments of some "experts" or some personal episodes instead of the official press releases of governments or TEPCO. I think social scientists should examine the significant differences in the coverage between the Japanese and the Western media on this nuclear power plant incident.

Nevertheless, many candidates who ran for positions in the recent nationwide local elections did not engage in the political discussion on the nuclear power plant issues, while they repeatedly stated that they would try raising the safety of nuclear power plants. While many people have questions about the safety of nuclear power plants, there is some continuing mysterious political silence following this question. I now wonder if this silence is the outcome of political control of public opinion, the response of a public resigning itself to live with nuclear power plants, or the result of some nation-wide coma.

TOM GINSBURG

I want to intervene in the Uno-Bowman exchange. Comparing the BP oil spill disaster in the United States with the nuclear disaster in Japan, I tend to agree with Uno that the two polities respond differently. While Bowman is correct that information was not very clear in the US case, the key point is that the government and business had a more adversarial relationship. President Obama spoke early and often about keeping the government "boot on the throat of BP," surely a hostile image. The Japanese government appeared much more closely tied to TEPCO. The government seemed to think its role was one of simply managing public fears. It also seemed to lack any independent fact-gathering capacity in the early days of the nuclear disaster. Surely there are problems associated with our pattern of more adversarial business-government relations, and surely in many instances government is captured by industry in the US. But in Japan, the two are nearly identical.

ANNELISE RILES

An Emerging Debate

It is exciting and even moving to see this rich conversation developing on Meridian 180. Thank you so much to all the contributors so far for taking this dialogue so seriously. On the surface, this conversation seems focused on recent events in Japan. But I think the comments raise many questions that transcend this specific set of events. I see a number of issues emerging from the comments so far that might benefit from more intensive exchange and from comparative analysis. I particularly want to encourage members outside of Japan to comment on these questions from the point of view of other events or political and legal contexts that seem most important to you.

Major Themes (in roughly the order in which they appeared)

1. National Unity versus Nationalism

Professor Sakai queries whether the national unity and concern for victims voiced by Professor Genda does not build on the ugly underpinnings of nationalism. Certainly, as an American married to a foreign citizen who lived through 9/11, I remember being as frightened of the anti-foreigner rhetoric of my fellow-citizens and government representatives as I was of Al Qaeda at that dark moment in our own history. Yesterday as I walked in my neighborhood in Aoyama, Tokyo I noticed a new shop catering to trendy young people selling every kind of clothing and bag with the words “Kamikaze” emblazoned on them. I don’t remember any such thing before. What a sad discursive frame for the sacrifices that each person in Japan is now making. I did not see a direct response to Sakai’s critique from Professor Genda so I want to invite him to respond if he wishes. But more broadly, what do others think about the relationship between national unity and nationalism? Do the two always coexist? How do we know the difference? What more positive models of national unity might we support? What examples can you share?

2. Focusing on policy solutions versus taking a break

Miyazaki and Kuo argue in different ways that the urge for finding policy solutions can produce unintended consequences. More generally, their comments focus on the role of the intellectual in moments of crisis. Their counterintuitive suggestion is that rather than rush to find answers our job is to slow things down. What do others think of this?

3. Government paternalism, individualism, and public/private collusion

The fascinating debate between Professors Uno, Bowman and Ginsburg concerns how to diagnose the political crisis behind this and other environmental crises. Uno argues that the Japanese government has acted paternalistically in failing to release information so that citizens can make their own choices, while the Japanese people in turn are in a “nation-wide coma.” As a foreigner in Japan now, I do share Uno’s inchoate sense of some sort of odd collective “coma”—on the one hand, ask any person and you get a quite robust critique of the government and TEPCO both, along with quite detailed knowledge of the dangers from radiation they are now facing every day. Yet the very same people for the most part do not even think of speaking out publicly, nor do they do as much as one might expect to avoid contact with radioactive rainwater or foods. They both know and choose not to know. What kind of political stance is this?

It reminds me a bit of something Professor Kasuga has tried to describe in his writings long before this crisis concerning so-called “freeters,” so I wonder if he wants to comment here. Bowman points out that in making this argument, Uno relies on a rosy picture of politics in the United States. Uno’s vision of pure political transparency enabling individual action in the US may be rhetorically effective in Japan but bears little relationship to the reality of American political life. I love this exchange because it gets to the heart of what we can achieve on Meridian 180. I did not see a direct response to this point from Uno, so I wonder if he wishes to comment. I also wonder if others want to intervene, either on the substance of the debate over which is better—individualism or paternalism—or how they come together in other political contexts, or on the more general point this exchange raises about how examples from other countries, fictional though they may be, can be deployed in domestic politics, and what the intended or unintended consequences may be.

Although Ginsburg structures his intervention in this debate as siding with Uno against Bowman, I think he actually raises a separate and equally fascinating point. His point is that rather than focus on individualism versus paternalism—on state/citizen relations—to understand the root causes of this disaster, we should be focusing on government/industry collusion. He argues that government/industry relations are not so collusive in the US. I wonder what Bowman or others think of this. But more generally, what do others think of the choice between focusing on individual /state

relationships versus industry or market/state relationships as a way of thinking about crises—financial, environmental, political, etc.?

4. Legal interpretation

The exchange between Kamiyama and Yamada (the financial expert and lawyer, respectively) about how to interpret a key clause in a Japanese law absolving nuclear power plant owners of liability in certain extreme situations raises much broader issues about the nature of legal interpretation, and I wonder if the many eminent legal theorists in our midst would like to weigh in on this issue. Essentially, Kamiyama looks to the letter of the law, while Yamada argues that the letter of the law tells you little: the meaning of the law will be determined by the political and economic effects of one interpretation versus another. Yamada makes what in the US we would call a classic legal realist argument here. My question for Yamada would be, what do you make of the fact that many of the influential parties in this story are not lawyers, and that many of them probably think about the law as does Kamiyama, in much more literal terms? At what point does their non-professional reading of law become legal reality by the force of the fact that they believe this interpretation to be correct and act accordingly—especially in Japan where even prominent company managers have less minute-to-minute contact with the kind of sophisticated legal expertise people such as Yamada offer? I am simply raising a query about the legal realist move from the point of view of a sociological understanding of legal thought in the market.

And one unanswered question: Doug Kysar raised the point that how any stimulus should be used is as important as how it should be funded. He offers the example of wasted stimulus funds in the United States. Since Kysar intended this as a cautionary comment on Genda's proposal, I wonder what Genda thinks of it. More generally, what experience do those in other countries have with this problem of controlling up front how large stimulus funds are distributed? I realize I have left out many important points but this post is already much too long. The main point is that I hope that our members around the world who perhaps feel less connected to the Japanese case will freely interject on these or any other points of debate. In emphasizing the points of potential disagreement, also, I am only acting on my hope that Meridian 180 can become the kind of friendly space in which we can disagree openly knowing we are among friends. We will close this conversation on May 31.

SHIGEKI UNO

Professor Riles has pointed out what I didn't clearly respond to in my previous comment. Since I can no longer "escape," I'd like to explain my idea. As the participants of this forum know, the Japanese – both intellectuals and the general public – have used such rhetoric as "in America" or "in Europe" since the time of the Meiji restoration. The Japanese have idealized the West (presenting an image which sometimes departs significantly from reality) to criticize actualities in Japan. Recently, this rhetoric has been regarded as an exaggeration, and is not as effective as it used to be. However, it is not fully gone. I found that I had been in line with this "tradition" when I read Professor Bowman's comment.

However, my research focus is on Alexis de Tocqueville. Tocqueville's purpose of writing "De la démocratie en Amérique" (Democracy in America) was to emphasize the healthy segments of American democracy (to the audience in France) while he pointed out the many problems in the system. I'm not trying to identify myself with Tocqueville, but I think that American democracy does suggest various points to reflect on with reference to Japanese society even as it contains many problems. "In a state of emergency, it's the individual who has the responsibility to make decisions, but not the government. The role of the government is to provide necessary information for all individuals so they can make their own decisions." I think that many individuals in America share this idea, but not so in Japan. As it is, I find paternalism in Japanese political culture, and I believe that that's not a good thing for Japanese democracy.

Crisis of Relationality

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Chika Watanabe
Shuhei Kimura
Anne Allison
Steffi Richter
Naoki Kasuga
Satsuki Takahashi
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This forum took place February – March 2012



YUJI GENDA “MISSING”

6,349: The death toll of the 1995 Kobe Earthquake

4,487: The death toll of American soldiers in Operation Iraqi Freedom (as of December 30, 2011)

2,602: The death toll of the 9/11 attack on the World Trade Center

1,863: The death toll of American soldiers in the war in Afghanistan (as of January 13, 2012)

15,841: The death toll of the Great East Japan Earthquake (as of December 11, 2011)

It is nonsense to translate people's lives into numbers. Around the world, many more people lose their lives than media can broadcast. Still, such tremendous figures do represent the degree of the survivors' grief.

Now, what do you think the following figures represent?

"3" and "24"

"3" is the total number of the missing persons in the Kobe Earthquake of 1995 and "24" is the total number of those missing in the 9/11 attack on World Trade Center.

3,493: This is the number of missing persons in the Great East Japan Earthquake. Most of these were swept away with the sets of the tsunami, and have been missing ever since. No other single incident has resulted in such a large number of missing persons in Japan since the end of WWII. Prior to this disaster in Japan, one of the worst natural disasters in Japan post-WWII was the Isewan Typhoon (Super Typhoon Vera) on September 26th, 1959. 4,687 died and 401 were missing. In response, the National Diet passed the Disaster Countermeasure Basic Act, and the executive branch rapidly developed disaster preparedness infrastructure with the act. With three times more deaths and nine times more missing persons than that of the Isewan Typhoon, what do we have to learn from the Great East Japan Earthquake?

In August 2005, Hurricane Katrina caused the deaths of 1,836 people, and 705 people were still missing as of April 18, 2006. Also, the 2008 Great Sichuan Earthquake (May 12) caused the deaths of 691,207 people, and, as of August 4, 2008, 18,194 people were still missing (and probably buried by debris). For me, facing such a tremendous figure of missing persons in the Great East Japan Earthquake, it seems that I can finally understand, for the first time, the sorrow of survivors of devastating disasters around the world.

In Japan, people are hesitant to use the word, recovery (*fukkou*), and the speed of the current recovery is slow. I suppose that the reason for both the

sentiment and for the slow recovery process is because there is still an enormous number of missing persons, most of whom will not be found imminently (especially given the nuclear incident at the Fukushima power plant).

For the families and the friends of the missing ones, the 3/11 disaster is still not over, it is an ongoing matter. Until they find their missing ones, they cannot put an end to this devastating disaster. In other words, the problem is that there are those who will never have "closure."

When we design a recovery project, we have to set up a "beginning" point and an "end" point. Also, we have to be able to decide what the "end" of the project should look like. For example, municipal governments around the Tohoku region are offering a temporary extension of unemployment benefits, and are hiring disaster survivors who have lost their jobs as temporary staff for rubble/debris clean-up and the like. However, such "temporary" measures will not and should not last for long. If a temporary measure lasts longer than it should, it can take away the motivation of the disaster survivors to become independent by themselves.

What should we consider the "starting point" and the "end point?" One of the officials of an affected municipality strongly stated that his municipality would stop any of the recovery projects that won't lead to definitive outcomes. I strongly believe that what we need in the recovery project is such determination to decisively act. Contrary to this, I assume that the survivors of missing ones and those who are restricted from going back to their homes around the Fukushima Daiichi Nuclear Power Plant will not have any sense of "closure" or an "end to the recovery effort" within their lifetimes. They suffer from the sense that there will never be any closure from this disaster. It is a similar sense of suffering which families of suicides in Japan (over 30,000 per year) go through, and which they cannot escape.

Now, what can we do for those who will not gain closure, including the families of missing ones? At the risk of sounding extreme, I don't think that anybody – including the government – can help them. Monetary remedies and financial relief programs for individuals' recoveries can provide temporary support for the survivors, but those are not the solution.

We are powerless to do anything for those without closure. Even if we try to share some part of their sorrow, we probably cannot do anything. However, even if we cannot understand their sorrow, it is true that they may see it as

an encouragement if people around the world do not forget their missing ones and are always praying for them.

As with the missing ones of the Great East Japan Earthquake and the victims of nuclear accidents, there are many people who cannot gain “closure.” When we think about characteristics of devastating disasters like the Great East Japan Earthquake (including the Great Sichuan Earthquake), how should we perceive a recovery? I would like to hear opinions from you and those living around the world (including anthropologists, priests, monks, and many more). As we build memorial statues, it seems to me that it is a process to think about how to forge a “non-closure mechanism” to remember the missing, and to concurrently make a “closure mechanism” to ease survivors’ sorrow.

We tend to think of “life” and “death” in a binary manner. However, those are in fact not binary opposites. It seems to me that there is one more sphere: the sphere of the “missing.” It seems that “missing” is neither life nor death, but is concurrently “life” and “death.” Such a train of thought on the “missing” might inherently be a Japanese way.

However, it may be meaningful if we can discuss the presence of the “missing” – as well as life and death – in a global sphere such as Meridian 180.

CHIKA WATANABE “KIZUNA (BONDS) AFTER THE GREAT EAST JAPAN EARTHQUAKE”

The word *kizuna* (“bonds,” “emotional ties”) is everywhere in Japan now, from advertisements to news reports. It calls for ties that bind “the Japanese nation” together into an imagined collective effort to rebuild the country after the devastating disaster. The message makes apparent sense. It was, after all, a national shock and tragedy.

But after spending some time as a volunteer with an NGO in Ishinomaki, one of the regions in Miyagi prefecture hit hardest by the earthquake and tsunami, I’m no longer sure how to think about this word. I’m struggling with how to define *kizuna*—what it means, where it can take us, and whom it encompasses (and excludes).

A man whose house was damaged—the first floor was completely destroyed by the tsunami—and currently lived on the second floor, spoke to us

volunteers in heated anger about the first few months after the disaster. He told us that, as late as May, the remains of the destroyed houses had not been cleared. But he knew that an elderly woman was buried under the rubble in his house. Other residents also knew where there were dead bodies, and many of them put signs in front of their half-damaged houses saying, "There are dead bodies here, please bring a shovel truck to remove the rubble," but nobody came for months. One day, he couldn't wait any longer and went out to find some policemen from the National Police Agency to ask for their help. They told him that they could only act on orders from the city. They argued back and forth, until they told him that if he wanted to make such a fuss, he should go to the city himself. So he went, and after some more hurdles, he finally got the city to give the order. "But they showed up with a single crowbar!" he exclaimed. Then they lined up in single file and took out pieces of rubble one by one, absurdly identifying each item as it was passed down the line. The first officer would yell out "Wood item coming (*mokuzai ikimasu*)!" and the following officers would echo the phrase down the line. He yelled at them that they needed to bring in shovel trucks, but they told him again that this was outside their authority. "And in the meantime," he said, "dozens of trucks just sat around not being used!"

The police as well as the Self-Defense Forces moved upon orders from the city mayor, he explained to us, and if this top person is worthless, these forces are also ineffective. He told us that the mayor is an idiot (*bonkura*), and so the situation was a mess. He was so incredibly angry. And it was infectious. How could the city and anyone with authority leave bodies of missing persons buried under debris because of some boundaries of authority? In a piece on this forum, Professor Yuji Genda speaks of "the people without end," those who cannot find closure because of loved ones who are still missing. How can we talk about *kizuna* then, from this anger and this space of the missing?

One of the differences I saw between May of 2011 and January of 2012 was that 10 months ago there was debris everywhere, and now there were empty plots of land. In some ways, this is a kind of progress. But in other ways, it's an unbelievably small one. From what I heard, the city had not yet decided what to do with most of these devastated areas. Could people rebuild there? If so, how? If not, what were their options? The city's decisions seemed to be too slow and non-transparent for residents left in limbo.

At the same time, I met several residents of Ishinomaki who were paving ways to move forward on their own. For example, a group of women from a local NPO had decided to continue their work teaching handcrafts. They themselves had lost their houses and were now living in temporary housing. When I attended one of their workshops with elderly women in a temporary housing community, I saw how powerful it was that instructors and participants could share the pain and frustration of losing their homes, even if sometimes it devolved into petty jealous gossip.

I was also impressed by the long-term volunteers. Some of them had been there for months, and others came regularly in between their work. And it was these regular volunteers who promised to return and did so that local residents seemed to appreciate most profoundly.

Although the commitment of these volunteers was extraordinary, the local NGO staff—most of them young men and women from Ishinomaki—spoke about the need to plan how volunteers could be most effective. The difficulty lay in figuring out where to draw the line between assistance and over-dependence. For example, the staff told me that some residents scheme and hoard aid items unnecessarily. Someone else pointed out that hoarding itself could be a sign of trauma.

Another issue bubbling beneath the surface was the sense of disparity. The earthquake and tsunami affected even immediate neighbors differently, one house being completely destroyed while the house across the street still stood basically intact. People I spoke with also mentioned that only a third of Ishinomaki residents had insurance on their houses. “Some people became rich with insurance money after the disaster, you know,” said one woman to a group of us once. “While others like myself became poor.” How do you talk about *kizuna* in the face of such statements?

I’m not against the sentiments of *kizuna*, but I do think that it needs to be complicated. The warm fuzzy feeling of being connected to other people shouldn’t become an alibi for suppressing expressions of anger or jealousy because they make us uncomfortable in the specificity of their demands. Simply the act of being together cannot be the endpoint of *kizuna*—it seems to me to be the beginning of a much more arduous process.

SHUHEI KIMURA “BEGINNING AND END”

Must everything have closure before new beginnings are possible? Can we get to a new starting point only after finding closure? We often start new things without ending others, but sometimes, even with closure, we find that new starts are not possible.

The term “missing person” reminds me of the Japanese abductees in North Korea. Since it is an extremely politicized subject, I would like to not go into details. However, in my view, what the families of the abductees want is to have them back alive, or at least to know the “truth.” The families of victims can accept what happened in tragedies by finding out the “truth” – in other words, by finding a way to understand what happened.

It's not only the families of the missing ones who suffer from a sense of loss; it takes a long time for anybody to accept death or loss and the truth behind it. In this sense, many individuals have not reached the end of the 3/11 disaster. Just as the families of the fallen WWII soldiers still travel to look for the remains of family members, decades may pass before the victims of the 3/11 disaster find closure. On top of the earthquake and tsunami, there was the nuclear accident. I cannot even imagine how long it will take for the survivors to reach an end point.

Meanwhile, some people have found their new starting points without having closure from the disaster. Last summer, the residents in affected areas hosted various events such as memorial services and summer festivals. Those events functioned as “non-closure mechanisms” for them to concurrently start over and not have closure from the disaster. The ceremonial events can make them forget, remember, and recall the disaster. Therefore, it is both a mechanism for the residents to receive a kind of closure and while also marking a point in a never-ending continuation. I assume that this paradox characterizes various upcoming events on March 11.

In such a sphere, a starting point and an end point may entangle with one another because others cannot force survivors to choose a beginning and an end. Residents of one affected fishing village used to organize two kinds of annual “traditional performing arts”: the Deer Dance and the Nembutsu Swordplay (a Buddhist Nianfo dance style). In addition to these traditional performing arts, any acts of handing down traditional practices were closely tied to the local rite of passage for young males becoming responsible adults in the community. Even though local youths constantly have been moving out of this fishing village, some come back to participate in these

rituals. However, the tsunami swept their ritual costumes away. On June 18th 2011, when many of the disaster survivors held the 100th day memorial events (based on a Buddhist calendar), male members of the fishing village quietly held the Deer Dance ritual in the middle of debris near a local shore. The Nembutsu Swordplay ritual is for families having their first Bon festival (an annual Japanese Buddhist event). It is a ritual for the family to accept that their family members have passed away. The organizers and the participants of the Nembutsu Swordplay ritual went around the local households to mark the starting point of their recovery project. However, they were told not to dance in temporary housing districts because some of the survivors in those districts would still be struggling to find closure.

A few days after the event and concurrently with other affected areas, members of this fishing village held a fireworks event at a local shore. They removed the debris and cleaned up the local seaside park for the fireworks event. On the day of the event, local stores set up stalls and a large crowd turned out for the fireworks. Some remarked that the event motivated them to “ganbaru” (to try his/her best, work hard, persevere, or stick to it) by seeing many people at the venue and seeing friends again. Yet, an owner of one of the stalls said, “It’s good that we can have a lot of events like this over the summer. However, this place will become desolate in winter. If we don’t do anything by the upcoming winter, this village will be through.” He implied that the “end” is coming for the village, but this “end” was one that residents around the Pacific coast of Tohoku region had been concerned about even prior to the earthquake.

If we do not want or cannot find closure, we might still move on to a new beginning. The process of recovery is probably an entanglement of infinite starting points and end points. Thus, different opinions about the direction of recovery efforts seem to crash into one another. What we need is not a device to assemble or aggregate different temporalities, but one that preserves entanglements without them becoming conflicts. In my opinion, such conditions of temporality might be important in this interval of ambiguity. Temporality is itself transitional. Though time has an end point, its movement concurrently implies a recovery, regardless of closure. (It is another ordinary day.)

ANNE ALLISON “RITUALS FOR LIFE: NON-CLOSURE MECHANISM”

Yuji Genda has asked us to consider the possibility of “non-closure mechanisms” for dealing with the wounds left gaping from the triple disasters of 3.11. As he notes, many people were killed. But a shockingly large number (3,493) remain missing; neither alive, nor dead. If I am reading Genda right, he’s also imputing such a liminal state to Japan/ese more broadly: to the fabric of an everydayness that has now been permanently altered, if not destroyed. Until the life/lives that died get mourned, is it impossible to move forward? “How Can We Bring Closure to Crises,” this forum is poignantly named.

But I agree here with the position taken by Chika Watanabe and Shuhei Kimura that closure itself is problematic. Those who have asked for closure (bodies removed under houses) don’t necessarily get it and the “kizuna” advocated for moving forward extracts costs and sacrifices differentially distributed.

This doesn’t mean, however, that marking the loss, death, and pain of what has transpired is a bad idea. Anthropologists know how traumatic disruption to the social—of any kind—is and how important—to the person and community—the attempt made to reestablish equilibrium. Rituals perform something collective: respect for the dead, grief at loss, the will to keep going. Kimura notes that memorial rituals of various kinds were performed throughout last summer in Tohoku, as were community-based ceremonies of other kinds. And Watanabe speaks of the outpouring of volunteerism and relief activities that proliferated across the country in the aftermath of 3.11: activities that could also be seen as ritualistic—rituals of survival in which people not otherwise connected came together to work towards helping others.

I too participated in volunteer activities last summer. I joined Peace Boat in Ishinomaki where I shoveled mud for two days and in Minami Souma I washed family photo albums retrieved from tsunami-battered houses at the local volunteer center. The work was moving though I wasn’t always sure how much we actually “moved”; the mud drained slowly from the rain gutters we dug at and the dirt ebbed even slower from the images we were washing. And yet we all worked hard, quite quite hard. And, at the end of the day, this work felt more meaningful than just about anything I’ve ever done. It struck me at some point that what we were doing was as ritualistic as anything “real;” done as much for those of us doing it as for those we were

there to help out. This wasn't so much about putting closure on something although we really WERE trying to shovel mud from the devastated downtown of Ishinomaki and to retrieve images of life prior to 3.11 for those who would find such photos a salve for their wounds.

But my sense is that these activities were also a means, a method of not standing still—of doing something in some kind of figuration of togetherness. In neither case was there much talk of “kizuna” or “tsunagari” or anything really concrete at all. But there was something. A willingness to act even if what that action would produce wasn't totally sure-footed or clear. And there was a different kind of coming together than that based on other kinds of social affiliation (sharing workplace, family, town, for example).

Respect for the dead, an effort made to work for—or with—those who have been wounded, and a collective gesture towards life moving forward. Not closure, but something socially ritualistic (or ritualistically social) in what I take to be a positive way.

STEFFI RICHTER “KIZUNA” FRAGMENTS

1. I had my first encounter with the term kizuna (“bonds”) in the book “Bonds of Civility. Aesthetic Networks and the Political Origins of Japanese Cultures,” written by Ikegami Eiko (Japanese Title: “Bi to reisetu no kizuna” 『美と礼節の絆』). She introduces this term as a new perspective on the premodern Edo Period in Japan: The emergence of civility and proto-modern relationships in the stable and hierarchically structured, state system of Tokugawa (“strong bonds”) can be understood only by simultaneously looking at the “weak bonds.” People formed these weak bonds or kizuna in several places of non-hierarchical, artistic activity, thus building diverse (aesthetic) networks. Those networks then crossed each other, leading to the formation of “public spheres,” where something new could emerge and undergo social change.

2. When I came across the speech of former prime minister Kan Naoto held at the World Economic Forum at Davos (on January 29, 2011), the title, “Opening Japan and reinventing Kizuna,” immediately awakened my curiosity. Interpreting “kizuna” as “interpersonal bonds,” Kan calls for a “Third Opening of Japan” to the world and for forging new connections between individuals in Japan itself, in order to create a “Society with the Least Unhappiness.” Only a few weeks later, the Three-Fold-Catastrophe

occurred in Northeast Japan, whereby “kizuna,” invoked by Kan, revealed a new, a dramatic, dimension.

3. Kan in Davos: “Through working, we connect ourselves with society and secure ‘a place to be’ and are given ‘a role to play,’” and so reinvent these bonds. However, long before the tragedy of 3/11, social reality gave Kan’s words a different meaning at least in two ways.

The nuclear industry is actually the only industry showing both the dual structure of labor and that the “kakusa” society has existed through the entire postwar history despite the perception that a relatively homogeneous, middle class, nuclear-family society had gained cultural hegemony since the mid-1970s. The inclusive “strong kizuna,” firm/family is possible only by socially and symbolically excluding certain work and workers, without whom this society would not be able to function. “Kaisha” and “katei” – both representing privacy – are spatially connected by a gigantic network of electric (!) private railways and their “consumerist meccas” (the “tâminaru hyakkaten”), through which public space degenerates into a space of transit.

But, this might change after 3/11. On 9/11 2011, a large anti-nuclear demonstration took place in Shinjuku, which followed many others in Tôkyô and other places since April 10th, and preceded a large demonstration a week later on September 19th, when approximately 60,000 people came together. It was organized by leaders who, even before the catastrophe in March, had looked for other bonds in a society that had been exceedingly affected by precarious (and non-regular) work relations and by a general precariousness from living in a society that simultaneously possesses technological requirements for twitter, the internet, and online social networks. One of these leaders is Matsumoto Hajime with his project “Shirôto no Ran” (Amateur Riot). His team had been acting in two relatively independent networks before they crossed paths and collaborated with the anti-nuclear demonstrations.

4. “Act locally and think in global contexts” to escape from or oppose the capitalist pressures of globalization as you so choose; this theme is also used by the group “Shirôto no Ran.” In Kôenji/Tôkyô, where the first demonstration against nuclear energy took place in April, Shirôto no Ran runs several thriving businesses on a small shopping street, including recycle shops, a vegan café, a second-hand shop, some bars, and an internet-radio station. With this business, they try to elude consumerist pressures by shaping a space for self-determined action and welcoming

other, typically elderly, residents of the neighborhood. The shop number 12 also hosts the “Underground university” (chika daigaku), which is “a non-regular university with non-regular lecturers for non-regular workers,” founded in 2008 during the uproar surrounding the Anti-G8-Summit movement and the failed invitation of Antonio Negri to Japan” (Hirai Gen).

Since April, the university has addressed the revolutionary changes in the Middle East and the social uprisings in the West (the “Occupy” movement) mostly in relation to their own, in a double sense, “trembling” society. So, Shirôto no Ran acts interpersonally and transnationally beyond Kôenji/Tôkyô/Japan. They are part of a transnational and transversally acting “multitude,” demonstrating that new forms of “kizuna” already do exist, albeit in a different sense than that dreamt by Kan, politicians, and other elites.

5. I agree with Saitô Tamaki regarding his uneasiness with “kizuna” as an alleged means to confront the dramatic results of the threefold catastrophe (see his article “Solidarity of free individuals” in “Mainichi shinbun” 2011/ Dec. 11th). And I agree with Hirose Takashi, who by responding to Noda's “Genpatsu jiko shûsoku sengen” (PM Noda's declaration on regaining control of reactors at the Fukushima Daiichi nuclear power plant, Dec. 16, 2011) complained that “kizuna” should not be the “kanji of the year 2011” but rather the “uso” – the lie.

NAOKI KASUGA “SUBVERSIVE LIES”

“Beginning,” “End,” “Bond,” “What?” -- All of those words deeply resonate with me. They are important words to ponder for life after 3/11. The perspectives of Professor Uno and Professor Riles inspired me, particularly with respect to the role of the disaster in present-day Japanese politics. Last Spring, when I posted my essay in one of Meridian 180's forums, I was feeling stuck, feeling lost, and feeling guilty. Objectifying these feelings about a post-disaster situation is easier by translating them into a political discussion. “‘Kizuna’ should not be the ‘kanji of the year 2011’ but rather the ‘uso’ – the lie.” This is right. I think that we must accept that this “lie” not only includes a political sphere but also non-political spheres. It is impossible to escape the influence of this “lie.”

Helplessly watching the ongoing political transformation, just as we felt the sense of discomfort leading to “jishuku” (voluntary restraint/self-censorship) right after 3/11, we also found it difficult to understand our

thoughts. One night, while walking along a road, a dark one because of the post-3/11 energy saving policy, I cynically said to myself, "If it's like this, I guess we can start another war." Was I the only one who thought this way? I think that self-restraint is important, and I'm not seriously thinking about starting any war. I just muttered to myself, cynically. However, I think that there is a problematic, shared sense that nobody should verbalize such a subtle sense of discomfort. The deterioration of Japanese politics is related to these layers of taboo.

One good example is the pay cut suffered by public employees in Japan. The current majority party of Japan's national Diet, the Democratic Party of Japan [DPJ], emphatically has been claiming that "a bureaucrat = a public employee = 'Japan's obstacle'" ever since the DPJ was a minority party. Recently, the national Diet passed a bill to cut the salary of public employees by 7.8%, and both majority and minority parties supported the bill. Further, partly as a result of post-WWII, anti-communism policy, Japanese public servants still lack the right to collectively bargain or strike. But we don't hear an outcry from those who had pinned their children's educations and their mortgages on their salaries.

The question, "How can we bring closure to crises?" is inseparable from another question, "How should we deal with a subversive lie?" Unlike a garden-variety lie which we can easily identify, aren't many subversive lies difficult for us to detect? This kind is difficult to resist. It discourages us from expressing our sense of discomfort, and the lie thickens. Its slyness, expanding since 3/11, causes us to think we are lying if we judge the lie as a lie. It turns a crisis into a much worse crisis.

SATSUKI TAKAHASHI "ENDLESS LIMINALITY"

When I read the words, "beginning," "end," and "closure," what initially came to mind was an e-mail from a fisherman around the end of last year. 2011 was coming to a close, and he wrote in his e-mail, "The pathway to the end [of this disaster] is still far away. The post-disaster effect may be more serious next year than it has been this year."

In the same e-mail, he also wrote that the town where he lives finally started restoring their port. It will take time but will probably be completed by the end of 2012. However, even though they can restore the port from the disaster damage, we still have no clear idea when the nuclear disaster will

end. Instead of having any closure, the nuclear disaster is expected to get worse.

As Professor Kimura mentioned, the ambiguous time in a temporal state is important. However, when we think about the nuclear power plant's temporality, I get stunned by thinking about what will constitute an "ordinary day" after a transitional phase. In late December 2011, the Japanese national administration announced that they were going to change their temporal "interim radiation safety standards" for food including fish to much stricter standard in April 2012. They are going to change the current interim standard on cesium, 500 becquerel per kilogram, to a new standard, 100 becquerel per kilogram.

A safety standard establishes the legal distinction between "safe" and "dangerous." To revise this standard, the national administration chose April, the start of the new administrative/fiscal year of Japanese institutions. That is to say, some food items which the national government currently approves as "safe" will be excluded from commercial distribution after April 2012 because they will be reclassified as "dangerous." Fishermen's catches, which currently meet the national government's interim safety standards, will soon be excluded this upcoming April. This will be a part of their "ordinary days." However, how long will such ordinary days last? Probably there will come a time when the government will again revise the distinction between "safe" and "dangerous." It seems that such ordinary days of a post-nuclear disaster will undergo some transformations but will continue into an endless liminality.

Last month, a Japanese TV program, NHK Special, broadcast a report on the oceanic effects of a nuclear aftermath. In this documentary, a Ukrainian official talked about the continuing fish contamination from the Chernobyl disaster in 1986 (which was 25 years ago). It will take thirty years for cesium to reach its half-life period. This Ukrainian official stressed that it was important to continue their research with patience. They still have five more years. What kind of closure will the Ukrainians have five years from now? As the Fukushima Dai-ichi Nuclear Power Plant is still emitting radiation, it is not clear when the thirty-year period will end, or even which point we will consider the start of such a thirty-year period. Will we live in this post-disaster ordinary period with an unclear closure by tentatively hoping there is closure in thirty years?

SHIGEKI UNO “POLITICAL CLOSURE”

After a crisis, finding closure in the political sphere presents another critical question. Currently in Japan, politicians are trying to find political closure in a very undesirable way.

Many thought that the 3/11 and nuclear disasters would mark a turning point for Japan. Japan's national politics had been in trouble since the change of the national executive branch and the Diet in 2009. Many hoped that politicians would restore their leadership by constructing a new Japanese society. However, it seems as though their hope was futile. Ever since 3/11, instead of proposing or implementing recovery plans, the majority party (DPJ: Democratic Party of Japan) and minority parties have spent all of their efforts forcing the Cabinet out of office. Without presenting any new energy policy, the current Prime Minister unilaterally declared an end to the nuclear power plant crisis, but nobody actually believes him. It seems to me that politicians are intentionally ignoring reality.

Although I understand the mentality of intentionally forgetting an undesirable reality, I find it extremely surprising that those in Japan's national politics have this mentality. Why are we facing this kind of trouble?

Perhaps, the single-seat constituency system in Japan offers us a clue. This political system brought about the so-called “two-party system” and changed national Japanese politics in 2009. As a result, the two-party system eliminated the differences between the DPJ and the Liberal Democratic Party and forced DPJ members to evoke an imagined “social majority” instead of developing principled political positions. What we now call the political system exiles frustrations and criticism from Japanese society to outside the political sphere. Members of established political parties currently fear such “voices” from these outer regions of politics, while others try to appropriate those “voices” as a political resource. Japanese politics is unstable, and the public is becoming more frustrated with Japanese politics and democracy.

At this rate, in the realm of Japanese politics, it seems that closure is only found by the negative employment of intentional forgetting. If Japanese democracy continues down this path, the crisis will worsen.

ANNELISE RILES “GUILT”

Following Shigeki Uno's suggestion that we look not just to Tohoku but to Tokyo, I want to put on the table another class of victims of the March 11

disasters. I have in mind the victims of the psychological trauma of the constant exposure to the unknowability of radiation risks (not to mention the possible long-term health effects of this exposure), and also of the trauma of having to face the stark reality that our leaders are unwilling or unable to put aside politics as usual in order to respond to the human suffering of the moment. We are all victims in this sense, although my sense is that the trauma has been even more severe for women who in Japan still have the greatest responsibility for ensuring that the family has safe food to eat, that children can have a safe place to play and that the emotional needs of the family are met to the point that office work and schoolwork gets done.

In one sense it may seem unimportant to raise this, given the magnitude of the suffering of the people most immediately affected by the tsunami and nuclear disaster. Re-reading my journal entries from the days after March 11, 2011, what strikes me now is how often the word “guilt” appears. I felt so guilty that others were suffering so much more than I was, and that made focusing on my own suffering seem completely illegitimate to myself.

Yet from another point of view, this guilt is also contributing to our political incapacitation. Sadly, the recovery is plagued by a number of serious political problems--an unwillingness of the mainstream press to fully investigate or to place news in analytical context, an unwillingness of elites in position of authority, whether in the private sector or the government, to take even small political risks in order to address the needs of the many victims, and a lingering unwillingness on the part of many citizens to openly challenge the government even though many people privately voice their total distrust of government claims and cynicism about its motivations. And in this sense we are not just victims but perpetrators.

HIROYUKI MORI “POPULISM”

As for Dr. Uno's point on the Japanese political sphere, I want to add a note about current politics in Japan, specifically the waves of populism from local governments.

Before the earthquake disaster of 3.11 last year, there were some influential trends of local populism, which created new, local parties in Osaka, Nagoya, and so forth. After the earthquake, the populist leaders (typified in Osaka) seem to leverage the disaster to cultivate their popularity, drawing attention

to the slow responses of the central government (i.e., the existing political parties such as DPJ and LDP).

Indeed, last November, the local party of Osaka, "Osaka Ishin no Kai" (Osaka Restoration Party), won the dual elections of governor (of Osaka prefecture) and mayor (of Osaka city) with the political promise of abolishing the divisions between Osaka and Sakai city, and uniting them together for greater political heft. The resulting so-called "Osaka Metropolis project," along with various political attacks on public servants and schoolteachers, serves as a means to garner political favor. One of the reasons that they insisted on the necessity of the Osaka Metropolis project is to benefit from the support of Tokyo capital. Just after the election, the new mayor, Hashimoto, president of "Osaka Ishin no Kai" said that the next national election must focus on federalism. He claimed that federalism, not the crisis of public finance or social security and the like, was the biggest political issue. His focus on federalism ironically overlooks the purpose of the Osaka Metropolis project to merge several smaller prefectures into larger state governments.

These local populist movements have eroded existing political parties and may exert such drastic influence as to melt down the Japanese political system.

I am afraid that there will be no "closure" in terms of the political sphere in Japan, unless we find a point of political stability.

HIROKAZU MIYAZAKI "A POLITICS OF HOPE?"

The popular Japanese novelist and influential opinion leader Ryu Murakami published an op-ed piece in the New York Times a few days after Japan's natural and nuclear disasters in which he states,

Ten years ago I wrote a novel in which a middle-school student, delivering a speech before Parliament, says: "This country has everything. You can find whatever you want here. The only thing you can't find is hope." One might say the opposite today: evacuation centers are facing serious shortages of food, water and medicine; there are shortages of goods and power in the Tokyo area as well. Our way of life is threatened, and the government and utility companies have not responded adequately. But for all we've lost, hope is in fact one thing we Japanese have regained. The great earthquake and tsunami have robbed us of many lives and resources. But we who were so intoxicated with our own prosperity have once again planted the seed of

hope. So I choose to believe (Ryu Murakami, "Amid Shortages, a Surplus of Hope," New York Times, March 16, 2011).

Hope has been a significant subject of public debate in Japan since the early 2000s. Japanese people, especially young people in Japan, seem to have lost hope for the future. This paralyzing sense of loss of hope and futurity has been amplified by the widely reported aging population and steady decline in the country's birth rate, the two decade-long economic slump and various phenomena associated with increasingly inward-looking youth. Murakami was one of the first social critics to capture this widely shared sentiment in the late 1990s. Have Japanese people ironically regained hope for the future as a result of the March 11 disasters, as Murakami has suggested?

The broad popular support for Mayor of Osaka Toru Hashimoto and his party, Osaka Ishin no Kai (Osaka Restoration Group), is a case in point. Hashimoto's politics can be regarded as one troubling kind of politics of hope. I do not support his politics myself, but I am not being ironic here. Hashimoto's upbringing as a self-made man (a lawyer and a popular television commentator who grew up in a family associated with a socially stigmatized and economically impoverished area of Osaka) and his consistent effort to challenge vested interests from yakuza to bureaucrats, mainstream party politicians and even academics present a concrete image of possible personal and social transformation. Of course, there are other potentially highly problematic and disturbing aspects to his politics which have been regarded as "dictatorial" and "fascistic," but hope tends to thrive on ambiguity as many philosophers and theologians have long pointed out. What all this suggests is that what is problematic about Japan today is not so much Hashimoto's politics or the apparent rise of fascistic politics per se as the lack of alternative politics of hope.

If Hashimoto's politics of hope takes for granted the irrelevance of academic, bureaucratic and other forms of expert knowledge, I wonder if there is a different kind of politics of hope possibly ignited in those very forms of knowledge currently under attack. I have no intention to defend academics, bureaucrats and other experts whose arrogance and inclination toward preserving the status quo at all costs is clearly part of the problem. What kind of politics of hope would be possible from within those forms of knowledge?

In my view, as I have suggested in my initial posting, one key issue is the question of uncertainty and unknowability. What the ongoing global financial crises and Japan's natural and nuclear disasters have

demonstrated is the fundamental truth of the unknowability of the world, and in my view, Japan today is one place in the world where this truth is lived (or consciously denied or forgotten) daily. However, those disasters beyond human control also have destroyed the authority of expertise of all kinds from financial engineering to seismology and nuclear energy science. Scientific approaches to the world share an admittedly often forgotten commitment to embrace the limits of certainty which, in my view, is dearly needed now more than ever. Could we practitioners of expert knowledge imagine an audacious response to political crises like Japan's current crisis? Could Meridian 180, which some of us initiated partially as a response to Japan's disasters, be a site for experiments in a politics of hope?

JOHN WHITMAN “THE DISCREDITING OF THE INTELLECTUAL ELITE IN THE POST-FUKUSHIMA JAPAN”

Hirokazu Miyazaki's post brings home a point that the triple disasters of March 11 reinforced - if only fleetingly - in the international cultural consciousness. For two decades Japan has been mapping out the dimensions of the kind of postindustrial society imagined by Western public intellectuals in the 1960s and 70s. These dimensions include not just the "hollowing out" (空洞化) of the industrial economy, but social phenomena such as hikikomori and the themes touched on in Murakami Ryu's novel *Exodus to a Country of Hope* (希望の国のエクソダス), cited by Professor Miyazaki. (In my opinion this novel is more in need of translation than the novels of the other, internationally more famous Murakami. The fact that the latter, but not the former, have been translated says much about how a particular construction of Japan is marketed by the international Japan Studies community.)

In terms of its movement along this particular historical trajectory, one could argue that Japan is more advanced, in a Hegelian sense, than other countries. The Fukushima nuclear emergency and its aftermath are part of this advanced status, not just in the crude sense that the same could (and will) happen elsewhere, but in the interplay between the government, industry, and the science establishment; the militarization of the emergency response; and especially the international and domestic control and marketing of information.

Professor Miyazaki also spoke to the phenomenon of Osaka Mayor Tooru Hashimoto and his Osaka Ishin no kai. I believe that Professor Miyazaki is correct in placing this phenomenon centrally within the discourse about hope, and also in cautioning intellectuals not to think about Hashimoto and his supporters in traditional terms of left and right. An additional legacy of Fukushima may be the very substantial discrediting of the intellectual elite, in universities and the dominant media. Not only did they fail to anticipate Fukushima, they failed to effectively critique the mass media response to the emergency, shape the public debate, or influence politics in a serious way afterward. Hashimoto's attack on this elite, especially in the universities, has traction, and it is likely to be part of the next episode of the post-Fukushima story.

GHAFFAN HAGE "HOPE AND CRISIS"

I'd like to make two remarks in relation to Hiro's excellent post. They are about the relation between the politics of crisis and the politics of hope. Both are drawn from the experience of the Lebanese civil war which lasted fifteen years with more than one hundred and fifty thousand people dead, the social and political institutions of the country were either totally destroyed or seriously weakened.

First, what does it mean to speak of a politics of crisis rather than simply refer to 'the crisis'? It means that there is an interpretive politics associated with every crisis where people with political and economic interests actively try to make of the crisis what they think is best for them. In Lebanon there was a big difference between those who tried to say the country was in crisis and those who portrayed it to be in a 'critical condition'. A crisis always carries with it the possibility/hope of something new emerging. It invites people to think of possible alternatives.

When a situation is portrayed as 'critical' the hope of something new disappears. Like when a patient is taken to hospital in a critical condition: the only hope people have is that the person makes it. In Lebanon, there was and still is an active interest in portraying the country as always on the verge of collapse: people wake up and say 'wow, we've made it one more day without collapsing'. In such situations a politics of hope predicated on imagining new possibilities is effectively made obsolete. This is to say, that there is a form of conservatism which denies that there is a severe crisis to argue against the necessity of change, and there is another conservatism which thrives on making the crisis even more severe than it

really is and then arguing: 'this is no time for thinking about change, we're lucky if we make at the moment'. I wonder how true this is of the Japanese politics of crisis.

Second, with relation to the politics of hope as Hiro has argued so well hope can be kidnapped by one political tendency or another if no alternative politics of hope is created. There is however another important dimension to this, hope is not simply differentiated in terms of its content but also in terms of the degree of political participation it invites. There is a politics of hope on both the right and the left that encourages dis-engagement from everyday political participation. We can call this passive hope. It involves people hoping but in the form of waiting for others to do something for them. There is on the other hand a participatory hope which encourages mass political action and participation. I'd like to think that academics should be on the side of this participatory hope.

NAOKI YOKOYAMA “SEARCHING IN DARKNESS”

I read Sokyū Genyū's “Fukushima ni Ikiru” (Living in Fukushima: 玄備宗久『福島に生きる』) and thought that Sokyū echoed Professor Miyazaki's post in this forum.

In his book, Genyū wrote, “From the beginning, life is like anchū-mosaku (trying various things without any secure approach to a solution, a shot in the dark or grasping at straws). Right from the start, life is our search for subjectivity, as our grasping in darkness pulls us through an uncertain future.”

I found that Genyū's “uncertain future” is similar to what Professor Miyazaki called “the fundamental uncertainty and unknowability of the world.”

Genyū stated, “The future is always uncertain” in any era, and “we should find our subjectivity in our stumbling progress and our grasping in darkness towards an uncertain future.” Meanwhile, Professor Miyazaki observes that we are “[a]t the moment at which the scientific mind is dearly needed. It seems that the authority of scientific knowledge has crumbled before those unprecedented disasters beyond human control.” Then, he asks, “What role can intellectuals and professionals play in this situation?”

I think that Professor Miyazaki says that the workings of nature and human behavior have become and are still uncontrollable. Genyū thinks that the workings of nature and human behavior are uncontrollable right from the

start. Even though there is a difference between Professor Miyazaki's and Genyu's arguments, the two of them agree that the workings of nature and human behavior are beyond our control at this time.

If so, I think that Genyu is also asking, "What role can the zen monk play?" His answer to this question is also to teach us, "We should find our subjectivity in our stumbling progress and our grasping in darkness towards an uncertain future." We may interpret that Genyu is also asserting that religious leaders cannot do anything, and we should not expect anything from them. If the workings of nature and human behavior are beyond human control, couldn't intellectuals and professionals say, "We can't do anything. Don't expect anything from us."

It seems that the experience from the 3/11 earthquake and the nuclear disaster is asking us to decide whether we think that the workings of nature and human behavior are beyond human control, or whether we think they are controllable.

Whichever position you take, I would like to share that the foundation of Genyu's book, "Fukushima ni Ikiru," is the message to "not depend on power or authority." The former position (of uncontrollability) is "to try various things without any secure approach to a solution, being puzzled and confused in too abstract a reality, to grasp at straws." The latter position (of controllability) is "to establish a system by discovering techniques for living in a fundamentally uncertain and unknowable world." The role of intellectuals and professionals is to clarify and establish such techniques.

I wrote this comment because I hope that Meridian 180 can be an experimental place for a politics of hope.

Nuclear Energy and Climate Change

Hirokazu Miyazaki

Amy Levine

Satsuki Takahashi

Vincent Talenti

Gabrielle Hecht

Haejoang Cho

Shuhei Kimura

Yuki Ashina

Hiroyuki Mori

This forum took place December 2015 – February 2016



HIROKAZU MIYAZAKI

Meridian 180 was formally launched just a few weeks after Japan's earthquake, tsunami and nuclear disaster of March 2011, with two forums—"A Grand Coalition for a Rise in the Consumption Tax is the Only Way," coordinated by Professor Yuji Genda and "Cry from the Scene," coordinated by Professor Naoki Kasuga—both of which addressed Japan's pressing issues following the disaster. Professor Genda's forum focused on the

country's fiscal/financial crisis while Professor Kasuga's forum focused on the crisis of trust in information. We also organized two forums in March 2012 prior to an international conference held at Cornell University to commemorate the first anniversary of the disaster—"How Can We Bring Closure to Crises?" (coordinated by Professor Genda) and "What Role Can Intellectuals and Professionals Play in Crises Like Japan's Natural and Nuclear Disasters?" (coordinated by myself).

The two forums together confirmed a lingering sense of crisis—a crisis of expertise and a crisis of hope, respectively—one year after the disaster. In the "Secrets in the Age of Transparency" forum coordinated by Professor Katherine Biber in September 2013, Ms. Yuki Ashina, a lawyer who had worked with victims of the nuclear disaster in Fukushima in their lawsuits against Tokyo Electric Power Company, the operator of Fukushima Dai-Ichi Power Plant, posted a comment in which she drew attention to her own and others' frustration with the lack of accurate information about the nuclear disaster. By then, the uncertainty associated with the condition of the troubled reactors at Fukushima Dai-Ichi and a broader condition of long-term low-level radiation exposure in Eastern Japan had become so profound and unbearable that many citizens just wanted to move on and embrace the excitement about Abenomics and the 2020 Tokyo Olympic Games. Two of Japan's nuclear reactors have already been restarted, and the Japanese government and Japan's nuclear plant manufacturers are now eager to export power plants overseas.

Many progressive intellectuals expected Japan and the world to change their view of nuclear energy and the future of humanity, more generally, after the disaster in Fukushima. What has unfolded since the disaster instead, however, is a layering of dissonances of all kinds—dissonances between people in Fukushima and the rest of the nation, between the official rhetoric of *kizuna* (bonds) and many citizens' quiet acts of self-protection and preservation, between the unknowability of the condition of the troubled reactors and the government's official declaration that the crisis is over, and between the ongoing crisis and the anachronistic dream of economic growth associated with Abenomics.

From the outset, our goal has been to develop a global/transnational perspective on Japan's multi-layered crises. We hoped to break open Japan's domestic debate about the future of nuclear energy deeply conditioned by vested interests of all kinds and hopelessly dictated by the unproductive disagreement about the relative safety of radiation vis-à-vis other kinds of everyday risk. In this new forum, we seek to follow this spirit to advance our

thinking one step further by re-visiting Japan's nuclear crisis, which is still continuing if not deepening, in relation to the increasingly heightened and shared concern about climate change. What do Japan's (ongoing) layered crises—a crisis of expertise, a crisis of trust and a crisis in the economics of nuclear energy—tell us about the future of nuclear energy for the rest of the world? How can highly technical issues related to nuclear technology and climate change be brought into conversation with the question of hope that encompasses Japan's and the Earth's crises? I especially welcome thoughts and reflections from Japan-based members.

AMY LEVINE

First, I wish to follow up on the 'vested interests' that Professor Miyazaki described working in Japan. In South Korea those interests are often called 'nuclear mafia' and there is so much more mainstream awareness of them in the wake of the Triple Disaster in Japan. Just a few years before, in contrast, those images of 'construction mafia' or other types of mafia were mostly confined to activists and progressives in South Korea.

Just after the IAEA's official report on Fukushima came out in September of this year and reactors had been restarted on Kyushu island, I happened to be giving a paper at a joint conference of Japanese and South Korean academics and the anxiety and interest in any discussion of a 'nuclear mafia' was impossible to miss. Both Japanese and Korean academics were keen to share the latest examples of questionable behavior by their respective governments. It was a rare moment of unity and common cause--around discussions of 'nuclear mafias' in Japan and South Korea--after just a month before when the two nations seemed so distant and tensions again ran high with all that surrounded the commemorations of end of World War II, Korean liberation from Japanese colonial rule, etc. in August of this year. Many were particularly interested in former PM Koizumi's critical comments about PM Abe's nuclear energy policies.

Second, following up on Prof. Slayton's introduction and previous comments on the Laudato si forum, one of the 'radioactive Greens' who supports nuclear energy penned this column in USA Today on recent news out of the Paris climate talks: <http://www.usatoday.com/story/opinion/2015/12/02/fracking-ends-climate-change-wars-clean-energy-solutions-column/76663456/>

The 'end of climate wars' pronouncement around the successes of fracking and shale gas technologies present a potential point of comparison and contrast to nuclear energy debates. This comparison need not be on the Breakthrough Institute's terms (<http://thebreakthrough.org/index.php/voices/michael-shellenberger-and-ted-nordhaus/frackings-war-on-coal>); is there another compelling read of that history and the incremental, pragmatic implications Breakthrough wishes to see?

SATSUKI TAKAHASHI

Inspired by earlier postings, what I would like to contribute to this forum is to pose questions regarding the relationship between hope and the future. In doing so, I would like to share some stories from Fukushima.

Based on my research on fishing communities in and near Fukushima since 2004, I hear more stories of hope and the future now than I did 10 years ago. It is true that, since the meltdown, the conditions of the marine environment are highly precarious. For over four years since the accident, marine scientists have been trying to figure out the mechanisms of radioactive contamination in the sea. But what they have learned so far is tiny, compared to what they haven't figured out. The lives of fishing families are equally precarious. Due to the radioactive contamination of fish and also the consumers' fear of eating any fish from Fukushima, fishing families are still living on disaster compensation payments from TEPCO. And yet, despite these highly precarious conditions, post-disaster discourses of Fukushima have been filled with the bright future. The quintessential example of this is the Fukushima Floating Offshore Wind Farm Demonstration Project.

Entrusted by the government, the project's consortium itself emphasizes that it is an "All-Japan" team, consisting of 1 university and 10 corporations. According to the team leader from Marubeni Corporation, the new energy project "opens up the nation's future." Symbolizing the bright future, the consortium named the first windmill, "Fukushima Mirai (Future)."

According to the consortium's leader, the project will open up the bright future for not only the nation's energy but also fisheries. By building an "ocean farm" underneath floating windmills, he argues that it will increase fish population. The image of the ocean farm multiplying fish in the radioactive ocean sounds like a post-apocalyptic sci-fi story. But for some Fukushima fishers, the ocean farm was a hopeful proposal that might allow

them to survive in their precarious future. They told me that “Fukushima Future” is their future.

Having these stories in mind, I am interested in understanding the conjuncture between hope and the future. As we know both from our own personal experiences and from scholarly works on these concepts, hope and the future are intimately connected. But how are they actually related? Related to this, I am also interested in the diverse projections of the future. When multiple narratives for a hopeful future emerge, how can we best make sense of the multiplicity in imagining the future? As Kirksey et al. remind us in their insightful essay, “Hope in Blasted Landscapes” (2015), hope can emerge in the midst of the worst industrial disaster, like the BP Oil Spill. I witness similar hopeful narratives in the case of Fukushima, but I wonder how hope generates different imaginaries of the future. As Professor Slayton nicely summarizes, debates of nuclear power and climate change alike ask about the future. But what is the future? What does hope do to the making of the future?

VINCENT IALENTI

The chances of a nuclear renaissance occurring in North America or Western Europe on a scale large enough to significantly mitigate climate change currently seems low.

Today's Gen III reactor building projects have very high up-front costs in the billions. With new reactor designs, profit is sometimes not seen for four decades-- financial risks poorly fit for more shallow corporate investment horizons. Then there's the pricey challenge of continually producing highly-trained nuclear personnel for a reactor's 75+ year operating life as universities see reduced student demand for nuclear education, high instruction costs per nuclear student, uncertain government funding futures for research reactors, and increasing worries about liabilities associated with keeping nuclear materials on campus. Without subsidy, why would a private university invest in bulky pricey Big Science departments – like space science or nuclear engineering – when they could instead invest in less-expensive more-lucrative information-, communication-, or computer-sciences departments that seem, to paying students, more in line with the times? On top of this, in the rare event of a major meltdown, enormous cleanup costs render Gen III reactors uninsurable: states/taxpayers must always bail them out. All this leads many to see nuclear as untenable without military-style government purchasing (to, say, achieve fleet effects), without clean energy

state subsidies like those seen by wind/solar/hydro in the US/EU, or without strong sovereign support for nuclear like that in China, India, or Russia today.

I suspect a lot would first have to change politically, economically, and culturally in North America and Western Europe before the regions could see enough new nuclear reactors built, and fossil plants not built, to have a meaningful impact on total yearly carbon emissions.

Yet some put hope in Gen IV small modular reactors (SMRs) currently under development. SMRs, it is said, would be safer because they "need fewer operators and safety officers, less robust containment structures, and less elaborate evacuation plans." But many contest this. It is also said that SMRs could lower nuclear's staggering initial investment costs: the smaller, lower-output, simpler reactor designs could be factory-built uniformly in one place and then transported via trucks/trains to individual installation sites with minimal on-site assembly. Today's Gen III reactors, by contrast, must be tailored to specific locales, customized for specific regulatory contexts, acquire their own unique construction licenses, be subject to more extensive safety analysis, and be assembled mostly on-site-- creating costly non-uniformities between projects. Even if SMRs do lower costs, would they be lowered enough to make nuclear widely viable? How much (state) funding for further R&D and innovation would be necessary before SMRs are refined enough to be commercially successful? Once running, would SMRs ever realistically be subsidized as clean energy sources like hydro/wind/solar?

GABRIELLE HECHT

I strongly second Talenti's skepticism about the ability of GenIII reactors to meet climate change goals. As for GenIVs: we'd do well to remember the long history of disappointments that followed 1950s atomic enthusiasm, symbolized by the (in)famous "too cheap to meter" claim. As a former US NRC Chair argued in a recent editorial, "The reality with nuclear power is that it has proven time and again to take longer and cost more to develop than predicted. There is nothing in the new designs nor the performance of the industry today that suggests this trend will end." Even putting questions of safety aside, nuclear plants cannot be built quickly enough to offer a realistic means of mitigating climate change.

Billions of people on this planet still do not have access to electricity. Providing such access is essential. But we need to understand that

arguments about the need for centralized baseload electricity are technopolitical claims that seek to keep power in the hands of large-scale corporations and the states that support them. This is true in North America and Europe; it's equally true in Asia and Africa. 2 quick examples:

Prime Ministers Shinzo Abe and Narendra Modi have just signed an MoU for Japan to help India build a new fleet of reactors. The deal gives Japan's nuclear industry a new lease on life. It enables Modi to claim that he can electrify the whole nation. And it gives both countries a means of countering China's growing economic and industrial power. But for many Indian citizens – such as those who live near the Russian-built Kudankulam nuclear power station, who have been protesting for years because of serious concerns about shoddy construction practices, India's willingness to properly regulate the industry, and the likelihood of an accident in their backyard – the deal represents a dangerous attack on Indian democracy. And this doesn't even take into account India's history of uranium extraction, among the most shameful and devastating in the world.

A similar conflict is brewing in South Africa, where President Jacob Zuma is pushing for his country to sign a deal to build 9 new nuclear reactors, probably with Russia. He's encountering vocal opposition from all corners, from mistrustful citizens to his own finance minister, Nhlanhla Nene, who argued that even with foreign financing, South Africa could afford no more than 2 new reactors. One undercurrent in this whole affair: there's good reason to suspect that any large contract would come with lucrative payoffs for top officials. Zuma rewarded Nene's efforts to stem corruption by sacking him.

Obviously there's a lot more to say. I've written elsewhere about African dreams for nuclear power. I join those who argue that massive investments and rapid deployment of solar, wind, and hydro are the only realistic means of quickly providing energy to those who so desperately need it, while remaining within a “safe operating space” for humanity.

HAEJOANG CHO

I am in deep agreement with Professor Hecht's comment, and I also recall Ulrich Beck's concept of a ‘risk society.’ Beck divides modernity into two phases, modernity and second modernity. Where modernity is characterized by rapid economic growth, second modernity systematically produces risk. In a risk society sustainability and reflexivity becomes more important than

economic production, and emphasis is placed on the capability to overcome and manage crises and disasters. In that sense Germany is a model case of a second modernity state: after meticulously reviewing the risks of nuclear power after the Fukushima disaster, it reached a national consensus to place a moratorium on new nuclear plants. On the other hand, those economic powerhouse states that take reckless risks for the sake of raising their economic indices, even after Fukushima, do so at the peril of bringing about global disaster.

I have always argued that once a country's per capita GDP exceeds \$20,000 it must wean itself of the paradigm of growth. However, former President Lee Myung-bak of Korea (from 2008 to 2013), elected around the time its per capita GDP reached this threshold, made the so-called 747 Pledge (7% growth rate, GDP per capita of \$40,000, and seventh largest economy in the world) and spurred forward large-scale construction projects including nuclear plants. The current president made a similar 474 Pledge (4% potential growth rate, 70% employment, GDP per capita of \$40,000) and last year announced the construction of 13 more nuclear plants by 2029, despite her promise as a candidate to take public safety seriously.

There is increasing exchange between Japanese and Korean activists since Fukushima and the anti-nuclear movement is gaining strength in Korea, exposing the "nuclear mafia" that Professor Levine mentioned. However, the prospects for success are not bright because the "nuclear construction mafia" is backed up by state power and comes equipped with an incredible publicity machine that turns lies into truth, not to mention the financial capacity to buy off local communities. Last week the credit rating service Moody's raised Korea's credit rating again, meaning these construction interests will be all the more eager to push forward their hugely profitable projects while this window of opportunity lasts. Moreover, a solid 30-odd percent of the electorate are swing voters ready to be seduced by the slogan of economic recovery.

Meanwhile, two weeks ago President Putin of Russia followed Prime Minister Abe of Japan in concluding an agreement for the construction of nuclear plants with Prime Minister Modi of India, a deal that is also said to include a program for the sale of arms. The success of the "nuclear environmentalists" at science marketing is as devastating as it is dazzling. Just as accumulation by dispossession (David Harvey) marches on after the Wall Street crash of 2008, the nuclear industry appears set to continue business as usual in the wake of Fukushima with the backing of its state sponsors.

Despite everything, I still believe that we can achieve “energy shift, energy down” and hope that we can discuss this possibility at the Okinawa conference this summer. 2016 is the year of the clever monkey and I am waiting for Sun Wukong (孙悟空), the legendary trickster Monkey King from the Chinese novel Journey to the West. Professor Genda is the one who put the playful theme “Asobi” to the conference; could he play the Monkey King that the year and the times call for?

SHUHEI KIMURA

In March 2015, after four years since the Great East Japan Earthquake, I visited Rikuzen-takata city, which was a tsunami disaster area (not a nuclear disaster area). I have visited there many times since the earthquake disaster happened, although I wish I could have been there immediately after the disaster. During the last four years, there have been different changes. Rubble piles and muddy coast have become a vast vacant lot, and the only surviving pine tree from the tsunami disaster has become a tourist spot, and BRT was inaugurated instead of reconstructing a railroad. Yet, these changes were less shocking for me than another scene which I saw at the time.

I am speaking of a bridge, which was called a “bridge to hope.” However, to be honest, I felt that it was grotesque. The conveyor belt was 33 feet in width and a couple of miles in length. One of its edges is located on the mountain across the river, covering the vast area where so many things were destroyed or artificially developed. With its undecorated steel bridge piers, was working on its own under only a few operators, the bridge looked like a gigantic automaton. People call this belt conveyor a “bridge to hope” (the name was chosen from submissions from the public), and it “can convey , in one day, the amount of soil which a 10 ton truck can convey 4000 times, thereby shortening construction time from about 10 years to about 2 years.”

In addition to this landscape, my shock stemmed from the fact that this “machine” was referred to as a source of “hope.” When the disaster happened, many people spoke hopefully of the future despite all of its confusion and uncertainties. People said that Japan would change and Japan had to change. However, four years later, it is this giant automaton that is the “hope” of the disaster area (or, at least, people are unwillingly calling it the “hope,” considering the governmental policy). There are infrastructures inevitably, systematically, and “solemnly” being created by this gigantic automaton. It is raising the ground level, which increases local people's

anxiety day by day. They are worried that the project is irreversible and so on. Are people limited to imagine their future under these grotesque infrastructures? Whose future and what kind of “hope” do these infrastructures represent?

* * *

Thank you very much for your important suggestion, Prof. Slayton. Since Prof. Miyazaki commented “I especially welcome thoughts and reflections from Japan-based members,” I was thinking about what I could say, based on my experiences. For the past five years I have sometimes participated in research concerning the tsunami victims. Nevertheless, I was not able to gather my words easily. Considering that there are so few comments from Japan-based members, I guess that their difficulty in saying something indicates a current reality in Japan.

Mr. Hiroshi Kainuma, who analyzed the historical process of building nuclear plants in Fukushima in *On Fukushima (Fukushima-ron)*, simply narrated the current discursive situation in Japan: ordinary Japanese people feel that “it is so difficult to say something to Fukushima problem.” (Introduction to *Fukushima Studies*). That is, we are still caught up in “Japan’s domestic debate ... hopelessly dictated by the unproductive disagreement.” Moreover, I feel that this situation is about to become more serious. Briefly speaking, in the current discursive sphere in Japan, the tendency is that all discussion about nuclear energy is framed either as approval or disapproval of the Abe administration). If we were to escape from this dichotomy and look at diverse values and interests in our society (which originate from the simple reason that it is so difficult to change the ways and places of our lives), we would find it difficult to say something. For instance, concerns about health risks from exposure to low levels of ionizing radiation will still seriously influence local farmers. They are carefully measuring radiation levels around Fukushima and cultivating crops under the condition that such risks were not scientifically verified based on enough data analysis. This is just one example. Even among those who are opposed to nuclear plants, there is no common ground. Under this condition, Mr. Kainuma, who was born in Fukushima prefecture, argued strongly that outsiders pretending to have knowledge shouldn’t say anything. However, ironically, his argument cannot convince those who already believe that their arguments are correct, and makes it uncomfortable for those who try to listen to different voices to speak frankly.

* * *

Following Prof. Slayton, I would like to reconfirm the significance about the problem at a specific 'level' or 'order.' We need to "identify outstanding questions about nuclear power, and explore possibilities for addressing those questions." Addressing the climate change problem needs "global scale" imagination. While the nuclear power problem as it relates to energy or economic issues could be discussed at the level of individual states, some comments in this forum argue that we should discuss the problem at an international level. In contrast, following Prof. Takahashi, I would like to argue that it is important to carefully consider about how this problem would appear on a smaller scale. And we should also try to connect multiple-scales to each other. This argument might be contrary to what Ulrich Beck said, that is, that radioactive substances move beyond borders. Having said that, the reason why I think a small-scale perspective is important is because in Japan, at least, it is not states or electric companies, but municipalities who decide to build (or accept) new nuclear plants.

In Japan, I think that this suggests a question: "in what scale we could resolve problems without falling into a strict discussion such as the above?" I think that some cities could provide clues to consider, such as Kubokawa-cho where residents discussed building nuclear plants for a couple of decades (Kohei Inose, Village and Nuclear Plants) and ultimately succeeded in rejecting them. Or we could consider Kashiwa-shi where citizens and farmers held a round-table meeting about confidence-building in farming in hotspot areas generated by Fukushima nuclear plants disaster, and shared their experiences in overcoming their situation (Yasumasa Igarashi, The Form of "Relief" which Everyone Has Chosen).

1) Once people begin to discuss or share their arguments about nuclear energy on Twitter, SNS, or other digital media, they are immediately connected to pro-Abe or anti-Abe camps by politically partisan people, and strongly criticized by partisan groups. Those who try to find common ground between pro-nuclear energy and anti-nuclear energy are severely criticized. However, the simplified formula (anti-Abe = anti-nuclear plants = anti-the US-Japan Security Treaty = the cooperation policy with other East Asian countries based on accepting Japan's war responsibility) and its reversed formula begin to twist due to the "resolving" of the Korean comfort women problem in the end of 2015.

YUKI ASHINA

I am a lawyer working on relief efforts on behalf of victims since the Fukushima Daiichi nuclear power plant accident of March 2011. I feel strong anger and sadness at the current situation; while about five years have passed since the accident, nuclear reactors all over Japan have been restarted almost as if the accident never happened. Moreover, technologies of building nuclear power plants are being exported from Japan to the rest of the world.

In the first place, electric power technologies aim to make people happy by making their lives convenient. But there is no “perfect” technology. Any technology will definitely have its demerits as well as merits. I believe that if a technology with excellent merits also has demerits which make people unhappy, it shouldn't be used by human beings.

Up until now, some have argued that the merits of nuclear power generation include its low cost, low environmental pollution, and high contributions to resolving the earth warming problem. I'm not a specialist of nuclear power generation, but I can understand that these merits are some of the reasons why nuclear power plants have been built all over the world.

Having said that, the Fukushima Daiichi nuclear power plant accident clarified the worst demerit which nuclear power generation has. That is, if a nuclear power plant accident occurs, people's lives around the plant will be fundamentally and irrevocably destroyed. I don't think that the aforementioned merits of nuclear power generation offset these demerits. I have seen people in despair, the lives they painstakingly built for themselves completely demolished by this accident. I would like to present some examples of the victims' sadness and anger. Behind the following examples there is an enormous number of victims.

First of all, I have to say, it was not only “workplaces” or “houses” (which are easily convertible into money) that were lost, but also “home towns” themselves. Even if victims received some compensation money, some things are not recoverable: their former classmate cohorts who have supported them even decades after graduation, the murmur of a mountain stream where they enjoyed fishing with their friends over the summer holidays, or the casual conversations with neighbors as people exchanged the vegetables which they harvested on farms cultivated with care and toil.

Moreover, I would like to stress that most victims cannot identify what they have lost, even now. They are so busy trying to sustain their everyday lives

that time to truly comprehend their loss. Even after five years, the nuclear power plant disaster – which is not contracting, but actually expanding every moment – must be weathered and will be forgotten in time.

I think that the first starting point to consider is the sustainability of nuclear power energy. All specialists and ordinary people, as well as victims, should seriously think about what would be lost in a “nuclear accident,” this worst demerit of nuclear energy generation. “Seriously” means to walk a mile in the victims’ shoes and imagine what it would be like if a nuclear power plant accident happened near your home. What would this mean for your life? Could you bear such a severe situation? If, together, we consider the possibility of nuclear energy generation technologies going out of control, then we have to imagine the potential misery for each of us as individuals and for our loved ones. Only after this consideration can we really think about whether pursuing such technologies is the correct course of action.

HIROYUKI MORI

Although almost five years have passed since the Fukushima nuclear plant disaster, there are still more than 100,000 refugees living in refugee camps in twelve municipalities. According to the latest environmental epidemiological research, the incidence rate of thyroid cancer in children at Fukushima is 20-50 times higher than normal, and an increase in future cancer rates seems unavoidable. If we considering this situation sincerely, it is obvious that it will take a very long time to restore the areas around the Fukushima nuclear power plant.

The Ashio Copper Mine mineral pollution incident has been regarded as the worst incidence of pollution in Japan. It occurred around the Watarase River in the Tochigi and Gunma Prefectures in the late of the 19th century. The development of the Ashio Copper Mine resulted in the emission of many different kinds of pollutants including smoke, polluted gas and polluted water polluted into the surrounding area at that time. Many villages were forced to be closed by this mine pollution. The influence of this disaster on the environment continues even to the present day. However, the pollution incident in Fukushima is quite more overwhelming and is really beyond comparison in Japanese history.

The true cause of the Fukushima nuclear power plant accident has not been clarified yet. Even so the Japanese government and municipalities are restarting nuclear power plants all over the country one after another. I

believe that requests from the business community and local stakeholders are strongly promoting that.

As a specialist of local governmental finances and economics, I have researched the Fukui Prefecture, which has the biggest agglomeration of nuclear plants in the world. I realize that this area is confined by a social-economic structure which depends on nuclear power plants and their potential to bring in enormous fixed asset tax, grants, subsidies, public works projects and consumer demand. At the same time, during my research, I felt that there was a strange atmosphere which did not permit us to speak about the nuclear power plant problem inside of the area. There was a horrible situation in which power companies attempted to conciliate local interested parties with bribes and municipalities put pressure on local residents who were opposed to nuclear power plants.

Following the precautionary principle in protecting health and the environment, which is common practice throughout the world, reducing and closing nuclear plants is inevitable. We should not cause other historical catastrophes. Toward that end, we have to take measures in areas already bound up within the structure of nuclear power plant dependence, fully mobilizing every kind of public policy such as monetary policy, financial policy, industrial development and citizen participation. I think it will take this kind of mobilization to abolish nuclear power plants.

Appendix Two

Interviews with Experts and Intellectuals

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The Role of Civil Society

Chika Watanabe

This is the transcript of a presentation and an interview conducted in March 2012 as part of the Cornell East Asia Program symposium, "Japan's Earthquake and Tsunami One Year Later: How Can We Bring Closure to Crises?"



CHIKA WATANABE “THE HISTORY OF INTERNATIONAL NGOS (INGOS) IN JAPAN”

Watch the video of the interview

The Role of Japanese International NGOs

The Japan NGO Center for International Cooperation (JANIC), a networking and information center for NGOs in Japan, identifies the first international NGOs (INGOs) in Japan as Christian medical groups that traveled to China in 1938 to provide care to refugees who were forced to flee by the Japanese military invasion (JANIC 2007). A couple of decades of inactivity followed due to the Second World War and its aftermath, but in the late 1950s, new aid activities began to emerge. By the 1960s, the first INGO-type organizations were established, such as the Organization for Industrial, Spiritual, and Cultural Advancement (OISCA, 1961), the Japanese Organization for

International Cooperation in Family Planning (JOICFP, 1968), and the beginnings of the Asia Rural Institute (ARI or Ajia Gakuin) in 1960. The precursor to the government aid agency, the Japan International Cooperation Agency (JICA), was also established in 1962 (under the name of Overseas Technical Cooperation Agency (OTCA)). In the 1970s, the growth of INGOs continued, particularly those with liberal and advocacy orientations. A number of them appeared in response to the large number of refugees from Indochina and Cambodia who arrived to Japan during this time period. Throughout the 1980s, development aid INGOs grew in number, as well as those addressing environmental, human rights, and other issues. The 1990s saw the greatest increase of INGOs, partly due to the impact of global calamities such as the wars in the former Yugoslavia and the Rwandan genocide, which raised public consciousness on the need for international aid interventions. The Kobe Earthquake of 1995 and the upsurge of volunteer activities afterwards also spurred the growth of nongovernmental and nonprofit organizations in general, particularly due to the creation of the 1998 Law to Promote Specified Nonprofit Activities ("NPO Law"), the first legal framework for nonprofits in Japan (Osborne 2003). This new law enabled groups to register as formal organizations, which facilitated their cooperation with other organizations and government agencies, the expansion of funding possibilities, and "a shift in state-society power balance" (Pekkanen 2003:53). Nevertheless, nonprofits in Japan remain operationally and financially small compared to Euro-American contexts: as of 2011, about half of the approximately 44,000 registered nonprofit organizations had an annual income of 50,000 USD or less (Cabinet Office 2013).

The late 1990s and early 2000s were also the beginning of professionalized emergency INGOs in Japan. In addition to INGOs that had been working with refugees in Southeast Asia since the 1970s and 1980s such as Shanti Volunteer Association (SVA), new organizations such as Japan Emergency NGO (JEN, 1994) and Peace Winds Japan (PWJ, 1996) appeared on the scene. These INGOs worked in war-torn countries such as the former Yugoslavia and Iraq, often in the midst of armed conflicts, and responded to natural disasters around the world. In 2000, Japan Platform was created out of the lessons learned in Kosovo, where Japanese INGOs realized that multi-lateral cooperation between NGOs, governments, the business community, media, and the academic community was essential for conducting effective aid activities. Thus, Japan Platform today is composed of members from NGOs, corporations, and the Ministry of Foreign Affairs who administer funds and

resources that can be mobilized rapidly by member NGOs in times of disaster and emergency aid.

When a calamity strikes, the Japan Platform Board of Directors and INGO representatives meet within 24-48 hours, if not earlier. Interested domestic NGOs and INGOs submit proposals to conduct preliminary assessments and implement emergency relief activities, which are approved by the board (they are rarely rejected since consultations happen before decision-making). Funds are dispensed in a very short amount of time. Unlike Western-based INGOs such as World Vision and Save the Children, which tend to have extra funds for emergency situations, Japanese INGOs do not have extra resources that they can quickly tap into. Moreover, whereas other types of funds such as from the Ministry of Foreign Affairs and corporations—the two biggest sources of funding for most Japanese INGOs—take time to process, the moneys available through Japan Platform has made rapid responses by Japanese INGOs possible. Although some observers are concerned about the links between corporate interests and NGO activities that became visible in the wake of the 2011 disasters (e.g., Robertson 2012), it is a fact that without such financial backing, either through or outside of Japan Platform, professional nongovernmental aid organizations in Japan would not be able to exist or respond to emergency situations. Moreover, if one follows the collaboration between corporations and INGOs ethnographically, it becomes clear that it is not simply the government and corporations that are setting the humanitarian agenda. Humanitarian and disaster aid in Japan is made up of a set of exchanges and deliberations that move between local people's concerns and state interests in complex ways.

Overview of JEN

Japan Emergency NGO (JEN) was established in 1994 in the midst of the armed conflicts in the former Yugoslavia. It began as a consortium of different Japanese INGOs to respond to the refugee crisis and other humanitarian needs in this region, but it eventually became one organization and expanded to projects worldwide. As of 2013, it conducts relief and rehabilitation efforts in Afghanistan, Iraq, Sri Lanka, Pakistan, South Sudan, Haiti, Japan, and Jordan for Syrian refugees. Its projects are funded by the Ministry of Foreign Affairs and other government schemes, corporate donors such as UNIQLO and Ajinomoto, the UN, and individual donations. Although JEN is not a religious NGO, the Buddhist-based new religion, Rishshō Kōseikai, has also been a long-term supporter, given the

religious group's participation in the initial consortium in the former Yugoslavia.

JEN's activities include infrastructural projects such as the reconstruction of schools, but it focuses mainly on "soft aid" activities that enable "efforts [to restore] a self-supporting livelihood both economically and mentally" among people affected by conflicts and disasters. A characteristic activity was, for instance, a workshop for fishermen in Sri Lanka to make and mend fishing nets after the tsunami of 2004, which took away their livelihoods, family members, and even entire communities. Instead of handing out already-made fishnets, JEN provided the raw materials so that the fishermen could engage in an activity that helped them regain their sense of self-reliance. The men were able not only to create the material resources necessary to restart their fishing activities, but also to use the workshops as spaces of healing. To this end, JEN hired social workers to facilitate these activities and encourage conversations that might help the fishermen process their losses and strengthen relationships with their neighbors. All of JEN's activities aim in these ways to encourage both economic self-reliance and psychosocial care.

Although JEN's projects are usually outside of Japan, the organization has also conducted activities in Japan. The first was a rehabilitation project in Niigata, an area north of Japan, after the Niigata Chūetsu Earthquake in 2004. JEN focused on a small aging community in a rural area and sought to revitalize the community by tackling the effects of the earthquake, but more importantly, the long-term problem of depopulation. JEN and the villagers worked together to implement volunteer programs that brought urban participants to help with agricultural and other labor, and to encourage villagers that their village was worth keeping alive. Six years later, young people and families had moved to the village. The villagers decided to manage the volunteer and other revitalization programs on their own. Thus, in 2010, JEN closed its Niigata project, although it continues to maintain relations with the villagers. When the March 2011 disaster happened, people from this community were among the first to contact JEN to offer their help in the devastated areas of Tohoku.

Japanese INGOs in Tohoku after March 11, 2011

When the earthquake struck on March 11, 2011, Japanese INGOs quickly took action. Unlike in most other disaster situations in the developing world where the United Nations coordinates relief activities, in this case, the Japanese government facilitated nongovernmental and volunteer aid

activities through the quasi-governmental Volunteer Centers of the Social Welfare Council (Shakai Fukushi Kyōgikai, or *shakyō*). Unfortunately, the administrators at the municipal and *shakyō* offices were themselves victims of the disaster, and the coordination of the various groups and individuals proved to be a challenge. As Leo Bosner, a former employee of the US government's Federal Emergency Management Agency (FEMA) found in his research in Japan in early 2012, prefectural and municipal officials were expected to be the first responders to disasters, but they received almost no training in disaster response (Bosner 2012). Furthermore, he points out that "the government did not appear to have a plan for incorporating NPOs [nonprofits] or donation management into the disaster response" and it relied too heavily on news reports rather than information from on-the-ground specialists at disaster sites. This led to the misallocation of relief items, and in some cases, the government's rejection of goods that were in fact much needed on the ground. Bosner also found that the actual experts in disaster aid were found outside of the government agencies in charge of managing the response, such as in INGOs and the fire service, but the government did not draw on their expertise.

Staff members at INGOs such as JEN had ample knowledge managing and implementing large-scale disaster aid projects. However, seen in the same rubric as "volunteer groups," the government relegated them to simple activities such as mud and debris removal through the Volunteer Centers. Thus, there was a general sense among INGO aid workers that their programmatic expertise from years of experience worldwide was not used to the fullest extent, echoing Bosner's findings.

Despite these challenges, as soon as the disaster hit, JEN staff prepared to go to the most severely affected regions of Sendai and Ishinomaki city along the coast in Miyagi prefecture. Although there were some delays due to the sudden threat of radiation coming from the Fukushima Daiichi Nuclear Power Plant, staff members from Tokyo were in the region by the thirteenth, distributing food, clothes, and other needed items identified through their assessments. On March 25, 2011, JEN established its Ishinomaki office and hired local staff members who have since been conducting a variety of livelihood assistance and other rehabilitation projects. As time has passed, JEN staffers have been able to cultivate trusting relationships with local communities, enabling the implementation of mid- and long-term projects beyond the tasks allowed by the government. Programs involving volunteers have also continued, similar to the Niigata projects that aim to address wider problems of rural depopulation in conjunction with disaster rehabilitation efforts.

The interview that follows is an excerpt from a conversation that took place at the JEN office in Tokyo with the Secretary General, Ms. Keiko Kiyama, in January 2012.

For more information please visit: www.jen-npo.org.

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INTERVIEW WITH KEIKO KIYAMA, INTERVIEWED BY CHIKA WATANABE

Note: In January 2012, when this interview took place, JEN had finished their work with emergency relief and had begun working on providing livelihood assistance and the renewal of community events like tea and coffee hours (*ochakkonomi* in local dialect) in the temporary housing established after the March 11 disaster. At present, in the spring of 2015, they are involved in psychosocial care for children, livelihood assistance, and community revitalisation.

Could you tell us a little bit about the work JEN is doing in Tohoku?

On March 11, when the earthquake and tsunami struck, our first thought was that we had to get help out there. Naturally, we were also affected by the disaster, but on the eleventh we found ourselves busy getting things ready. The first group went out on the thirteenth. In the first few months, in what's known as emergency relief, the support we provided was primarily essential supplies and helping out with things. And by things I mean, for instance, dispatching volunteers to help clear the mud the tsunami had caked on to houses, that kind of thing. That's the kind of emergency relief with which we started, but now things are moving in the direction of getting things back to normal.

JEN also does work overseas. Has that been different to what you've been doing in Japan, or have they been similar?

They've been surprisingly similar. I felt the same way when we were providing relief during the Chūetsu Earthquake in Niigata in 2004—that what we do overseas can be put to use domestically as is. When we go overseas, the assumption is that the cultures are different, so we should not impose our own ideas onto people. I believe that, since we are people who will eventually leave, success means being able to withdraw aid as soon as possible. When you try to achieve sustainable results, based on the idea that you're going to eventually leave, the important question is how to promote activities based on local people's agency and ownership. All of this was the case in Niigata, and it is now what we are attempting in Tohoku. While we're focusing on Ishinomaki in Miyagi at the moment, the environment in which the people of Ishinomaki originally lived and the one we lived in is different, and the culture that had developed there over time is different as well. Obviously we speak Japanese, but there are dialects and words particular to the region, and even if we get to talk to people, if we only do this while thinking about the kind of lives we lead in Tokyo, we'll never understand their needs. In the sense that the support we offer is to get people to become more actively involved, I think the work we've been doing overseas to make people self-reliant is exactly the same as what we're doing in Japan.

Is the earthquake in Tohoku comparable to the one in Chūetsu?

Obviously in Chūetsu the people the earthquake hit were severely affected, but in terms of the region and areas, I think the damage was more limited there than in this case. If there hadn't been a tsunami following the earthquake, I don't think as many people would have died as have at present. So many things have been damaged by both the earthquake and the tsunami that, in terms of degree and scale, the damage is different. But as the individuals involved are precisely that, individuals, even though in Ishinomaki alone almost ten thousand people have died and others remain unlocated, they each have a family. In terms of one-to-one involvement, I think they're the same.

When someone feels positive, it affects someone else, and I think that getting the entire region back on its feet is what happens when you make all the people inside it feel that way. Naturally, there are cases where people feel better because the area has been revitalised and such, but I think it's important to focus on both. It's obviously pointless to try and make all of Ishinomaki feel better, but by giving people back their lives, one person at a time, as things ease up, it eventually starts to spread, and I think that's when a town starts to get its spirit back.

What exactly do you think you do to make those affected by the disaster feel better?

While it pains me to say it, I don't think what those affected by the disaster lost is something they will ever get back. For the families that have lost loved ones, sad as it is, they'll never see them again. But even as you hold on to that sadness as you move forward, if you can get your hope for the future back, and if you can feel like you're not alone in this, you also feel like maybe you can keep on going.

Which isn't to say that there's nothing to be done, and we just give up on the people whose houses were washed away. But those people themselves have given up on the idea that there is anything to be done, and if they don't look toward something else, they'll remain trapped in that grief forever. They can't take the next step so long as they're stuck wondering why they had to lose these things. Because it's important for these people to accept this themselves, to come to terms with it, efforts have to be made that provide them with something that makes this possible. While JEN has,

for a very long time, been talking about “psychosocial care and supporting self-reliance,” we believe that a certain amount of emotional recovery is an important prerequisite for the process of becoming self-reliant. In order to bring about that kind of recovery, it's necessary to feel that you've come together with the people around you to accomplish something. And that comes about when you feel that you are truly connected with other people, when you feel that other people understand the grief you're going through, that kind of connection. While people have been talking a lot about recovering *kizuna* for this sense of connection, we believe that it's absolutely vital that people get back this connection or *kizuna* as a psychosocial one.

There are, for example, movements in the temporary housing for this purpose. Particularly in the case of Ishinomaki, as the number of people affected by the disaster is exceptionally high, this meant that even the people at the municipal office were in an extraordinary state of disarray. It was terrible. While it would have been great for people who had become close in the evacuation zones to be relocated together when moved into temporary housing, there just weren't enough people at the city office to arrange it. And as a result, the relocation of people from the evacuation zones was all done by lottery to decide where each individual household should go. In these really small towns and cities, you want to listen to people who only move in community units and move them in those units, but in Ishinomaki this wasn't possible and the people who were moved into temporary housing together didn't know each other. Obviously, they said hello to each other, but it's part of the local culture to be unassuming, and we've heard that even if people wanted to invite someone over for tea, they were worried that it might seem like they were taking the upper hand in the situation. And so, JEN invited everyone to have a cup of tea together at an *ochakkonomi*, and they all came drink tea and introduce themselves in a more formal setting. After that they started going over to each other's houses, and then people became friends, and could share what was weighing them down. It seems that it was a matter of people meeting up to share what was getting to them.

I see. But the areas affected are very large, and there are limits to what a single person or group can do. How do you continue your work given those limitations?

That's also something that's been on my mind. That we're dealing with such wide area, with this many people, that it's this severe. If it had escalated gradually then people would have been prepared for it, but it happened so

quickly that it ended up being the way it has. Everything changed overnight. And so we had to rush, because we wanted to support more people, quickly, over a wider area. We know that's not really possible. But I had a teacher once who used to tell me whenever I was struggling with a dilemma, "Light up even a corner of the world." Whenever I heard this, I thought that there was truth in it, this idea of 'lighting up even a corner of the world.' When you want to help support people in the way they live their lives, a portion of time and materials is necessary. My little story isn't going to heal anyone's heartbreak but, even if we assume that it could, this would still only be limited to a certain number of people in a given area, and after I told them this story, they would all go to their own homes, where the same kind of life is waiting for them. If we assume there is a limit to the amount of people it can affect, even if measures are taken to change the way people do things, then there's nothing to do but do what you're doing now, with all your heart and soul, and believe that this will have a ripple effect. You do it all the while thinking that when you meet another person, that nothing exists apart from them. You do it that way, person by person, politely, properly. You light up even just a corner of the world. Even if, in this vast darkness, I can light up only one little corner of the world, then someone can carry on from there, in the space lit up, and can light up another corner. Convinced that if we kept it up then before we knew it things would light up, we stopped being in such a rush to fix things.

What can you do exactly to expand the effects of this 'lighting up a corner of the world'?

What's important for JEN is, like we say, whether or not the project is about supporting self-reliance. Can the people involved in that project establish JEN's three watchwords for self-reliance, can they involve themselves in the community, and can they come up with solutions? This is actually something the people can do themselves, but because they find themselves in situations that make them think they can't, JEN is involved. I don't think the really big issues are ones that can be solved. But if you take those big issues and break them down, they become a more manageable size. You take what you can, bit by bit, and if people come along who feel like they can really solve one of the big issues, the community starts to work alongside them.

One example of this is fishing nets. We're giving support with fishing equipment right now, but it isn't just a matter of just handing it over, like 'here you go,' but of making sure that you show people how to use the equipment and how they can use it to get their livelihoods back while also

trying to form a bond with them. If people's emotional state is any worse than it is already, then even if they want to really make a go of it with the fishing then there will still be days where nothing goes right, and days when they're just miserable. You have good days, and you have bad, but to have to suffer from a bad catch or a day when the fish won't bite, after you've already lost everything in the tsunami, makes people tend to give up and there's no point in them going on. This loss of self-confidence, this giving up, isn't something you can stop, but if people have strong bonds, if they have *kizuna* and people to look after them, and if you can make sure that they have friends, then I think it's easier for people to get back on their feet. And so it's not a matter of just giving fishing equipment, but annoying people by asking whether or not everyone's using the equipment they've been given together, or asking people to hurry up so we can eat their oysters. We end up being quite harsh. We expect people to engage with it out of a kind of resentment they feel toward us, a kind of, 'I'll get you something to eat since you're bugging me so much' attitude. We try to involve ourselves with the idea that, since they're the ones who grow the oysters, we're just people who want to eat them. For a start, we don't know the first thing about growing oysters; people have to develop methods of producing a better product by themselves, because they're the ones who have, from the get-go, been capable of doing this. And even when we do get to eat them, if the oysters aren't good, we have to just come out and say it. When we say it, we get people to try harder to produce something better. In the end, when they've managed to produce something truly delicious and they cry tears of joy, maybe it's because they realize that there was a reason for all the work they put into it. And when you put something wonderful out there that people all over the world can make use of, then the scope of the future you see in front of you sort of pans into widescreen. At first circulation comes back within Japan itself, and as a result that might lead to expanding globally. We are accompanists, and our partner performs the main role. It's important to us how our partner put things in motion, and when they do that and things go well, we're happy. To take joy out of this, or to put it in everyday terms, the joy we get out of something like being able to experience many successes, is, I think, connected very much to a sense of independence. That kind of involvement is something that can only be done with a limited number of people. When people keep that up, when they do things because they take an interest in it, the people around them begin to do the same. It's a small level of involvement, but still, I think it sets the light in motion.

Speaking of light, the impression I have of what JEN is doing in Ishinomaki is that the local staff take centre stage and are doing a variety of jobs shared between them. I thought that that kind of thing might be the reason why people are starting to do so well there.

JEN began with the former Yugoslavia. There were no jobs for refugees and so we started from the idea of taking on as many refugees as possible. We didn't consciously do this to make them feel better. But we realized that just the very fact of being made refugees is extremely psychologically damaging. Through their work at JEN, these people began to do things for other people. That's what draws out psychological strength. What I'm always surprised at is that at the interview stage these people are completely depressed, pale, have no ambition, but after one or two months working at JEN, they begin to look much better. That is, just as you're saying, in doing things for other people, their own lives begin to light up. Because those affected are also emotionally devastated, what I want, and what JEN is actively devoted to achieving, is for them to start to feel better by doing things for other people.

There's still a world of possibilities out there for young and old alike, and it makes me happy if we can help draw those possibilities out. The ideal is that people start to get back on their feet while thinking that they've been given nothing by JEN. Obviously, we do a wide range of things, but I'm inclined to think that it's the people who can think to themselves that they're getting nothing from us that are probably most self-reliant. Because the support JEN provides isn't the kind that's given, but one that supports, the shortest way to get survivors to be self-reliant is to have a variety of voluntary projects that give them the sense that they're doing everything themselves. Even if you take people somewhere and have them to experience something, and they end up thinking this way on their own, then of course people will go, but it's not a matter of telling people they should go, but of putting it out there in a way that tells them that they should go if they might be interested in what's there. And, when people want to have a look at something because they find it interesting, and then decide that they want to do this thing or that thing, and can act on it, then this means that though the impetus may have come from JEN, the person decides for themselves what they want to do. They have a sense of ownership in what they go on to do. If they feel that sense of propriety, it's sustainable, they change things, and there's a high rate of success.

And what would you like to do following on from this?

While I really don't like the division of people who support and people who are supported, what we who have the opportunity to provide support have to remember is how necessary it is to have local people be in charge. At the same time, obviously getting things back to the way they were is what we try to do, but these places were already in the process of depopulation. Even if we could restore, 100%, how things were, all that lies beyond that is further depopulation. And so, if the local people have to hope for something, I think, fundamentally, that it would be better if they hoped to work together for a different future. They say that there are 'three things' necessary for village renewal — young people, outsiders, and idiots. Which means that you need the reckless energy of young people and the different viewpoint of outsiders, along with the blissful ignorance of idiots. If we can put those three things out there in some form, I think the end result is village renewal.

"Build back better" is a phrase used a lot in the world of emergency aid, but in places originally underpopulated, if you just build it back it's not going to get any better. The original meaning of build back better is to build a better place than before, but this unfortunately doesn't extend to making it an economically and materially better place. And that being the case, we outsiders think that there's nothing to do but create a different future. But to tell people whose heads and hearts weren't looking for it that now is the time for change, and that now, when people have been emotionally devastated by the disaster, that we should do something new, is extremely difficult. This is precisely the reason why local people must have an active role, and why I also think it's important to support people being able to shape their own future. What kind of future we can make together, for these places damaged by the disaster that have been emotionally and physically weakened, is the challenge facing those who support and those who are supported, the challenge facing everyone. And yet if we don't do this then nothing will change, and all that's left is hope. It's inconceivable for us to do nothing just because it's difficult, and so it's important that we take things one step at a time.

You often hear people in Tokyo say that disaster is a chance, and sometimes it feels as if people don't actually understand how difficult the situation is. I get the sense that maybe the fact that there are struggles, and that the local people are frustrated, is being ignored. I feel like maybe what's needed

isn't necessarily just connections or kizuna... but what do you think?

I feel like it's the same as environmental issues. And incidentally, I think the expression "being kind to the earth" is a misunderstanding; we are alive because the earth is kind to us. Putting up with insufferable circumstances and living in horrible conditions doesn't necessarily mean that you have a keen sense of the environment. But if you're earth-friendly because you really want to do be, and because it's fun, then what you get out of that is people who are actually ecological, and a way of going about things that doesn't destroy the environment.

At the moment, people are being divided into those who support, and those who are supported, which means those 'poor survivors' of the disaster. But, as has been said before, if you take the country known as Japan as a single body, when the left hand is injured and no longer works, but the right still functions, it feels as if the whole body is healthy just because the right is. The entire system of Japan could only be put in motion so long as Eastern Japan was a part of that body. If it's damaged to the extent it has been, this doesn't mean there's no effect felt elsewhere, even economically. It's not true that just because the right hand is undamaged that nothing has happened. What the left has been holding on to comes to be placed on the right, and to think that this means the right hand has become more active in response is also a mistake. This is precisely why sustainable renewal of Eastern Japan is beneficial for the whole country. And so it's just not a matter of *kizuna* or *ganbare*, of connection or giving it your all, but of what we can do ourselves. Those of us in Tokyo, people in Kyushu — I want us to think about what we can do.

And I don't think this is just the case for Japan. If we expand this idea, that somewhere out there in the world there are people like this, dying, then you realize that it doesn't make any sense. You come to imagine people living together on the same planet. I think we can give more than a passing thought to imagining that we can change the way things are now, which tells us that just by virtue of being born in a poor country, people have to live with heartbreak. The idea that you can convert anything into money and put a price on things is a bad habit. Maybe the chance we have is to change that.

The people who live in Tohoku as well as the people who were there sightseeing, aren't finding any joy or value in something that's purely monetary through volunteering. It's a difficult thing to express, because it

can't be converted into money. I think that though many people understand that this is a difficult thing to express, they just pretend that they don't. If this weren't the case, that people find something that isn't money in the volunteer effort, then the idea that so many would take pleasure out of volunteering in such a terrible situation, or would exhaust themselves for other people while putting up with bad food, would make no sense. People enrich their own lives by doing things for other people, for that support to be more direct makes the people who receive it happier too. Think every day about what you can do for someone far off, try doing what you can. Even if you fail, when you get it in your head to do it differently next time and try harder, I think that can change a person and society as a whole. I think that's caused this change in values.

In the wake of the present incident, a lot of things have been talked about under the bracket of 'Japan.' How do you think we can think about relief and this disaster from an international perspective?

In terms of the flow of information, and economically, Japan isn't isolated in the slightest. And so, if you look at Japan as a single person, it may seem like a matter of the left hand being injured, but if you look at the whole world as a person with a single body, Eastern Japan, and Somalia too, are injured. Haiti is still injured. The entire body is riddled with wounds. So in supporting places that we're involved in, first by using what we're directly involved with to positively influence the people around us, it's my hope that those people influence other people who influence other people, and that goes on to change the world. That's why, in that sense, I think Eastern Japan has become a wakeup call for a lot of people living in Japan. Looked at on a global scale, given that it was a large disaster that occurred in a developed country, I wonder if it hasn't been an important chance for an awareness to spread out through the developed world.

Everyone wants the people close to them to be happy. In English people often say, "I wish the best for you and your loved ones." Who are these "loved ones"? They may be your family. Maybe your friends as well. The people who matter to your friends should also be important to you. And so, when you speak about just how far out your nearest and dearest are, then isn't a matter of that term extending to the entire world?

Is there anything else you'd like to add?

I feel like for relief, a lot of it comes from the feeling that people want to do something, and a lot of support comes from the desire to give support in a way that makes someone else happy. Superficially, for instance, you could give someone a sweet to make them happy. But when everyone has sweets it's impossible to eat all of them. In that case, I'd like people to think about what would make people happy whether or not they got a sweet or not. Maybe it's more the case that these people want to give other people sweets. This means it's not a matter of wanting to give, but of wanting to receive. That's the kind of support I want to give. The idea of getting to eat oysters I talked about earlier is part of that support. In other words, it's important to provide a role for people so that they can feel like they're doing something. There is no one who can't be useful, but, when they lose their faith in themselves, or are feeling down, then they get convinced that that's the case. There are many people who have lost their confidence simply from the experience of losing pretty much everything they had managed to get, loss of that degree. People might feel like, "Oh, I used to buy this and that by myself, with money I saved and put aside myself, but now I have to be given everything." So in order to get people to believe in themselves again, it's important to support without giving. It's support, but it's a strict kind of support. Presenting people with requests like, "Do this for me, please" — I think that's probably a good way to go about giving aid.

A form of aid where you 'have something done' is a novel idea. I wish JEN all the best with your future endeavours. Thank you very much for your time today.

The Role of Architects and Engineers

*Shin Sakurai
Hirokazu Miyazaki*

This is the transcript of an interview conducted in March 2012 as part of the Cornell East Asia Program symposium, "Japan's Earthquake and Tsunami One Year Later: How Can We Bring Closure to Crises?"



INTERVIEW WITH SHIN SAKURAI, INTERVIEWED BY HIROKAZU MIYAZAKI

I'm writing here about what I was doing on March 11, 2011, and also writing my comments about the direction of general architecture/design after the 3/11 disaster. That day, I was conducting a mandatory inspection of a university laboratory, which I designed two years prior to March 11, 2011. When the initial jolt occurred, I was on the fourth floor of the seven-story building. Since the building was designed as a quake-absorbing structure, we felt the quake, but it seemed to be approximately a level 3 on the Japanese scale. Of course, it was no problem to stay standing upright, but it shook just enough to feel like a really big shake. I thought that the jolt which I felt must have been from the restorative force of the rubber of the quake-

absorbing structure. As a result, there were no serious damages in the building. There are several agricultural departments' laboratories and research offices in the building with a lot of fragile equipment such as beakers and flasks, but the quake did not cause much damage to that equipment. Usually, elevators are programmed to stop once the system detects an earthquake, but they normally restart working right after the initial jolt. However, I finally realized that there was something extremely abnormal going on when I saw how severely the lightning rods of neighboring buildings were shaking. My building is equipped with a measuring device that records the degree of jolts when a quake hits the building. I checked this device later and found out that the initial jolt shook the building at 4cm.

The university is in Tokyo's Machida City. On the day of the earthquake, I could not go back home because all public transportation was out of service. The university kindly let me stay over at their facility. Several districts near the university suffered a blackout. Depending on the location of the electric substations, it was clear where the blackout areas were and where the normal areas were (roads were often clear geographical markers). I thought that we might have to think about redesigning electric circuits to provide electricity from multiple substations for different districts, if we can make such infrastructure. When I designed a hotel building for an international hotel corporation, the corporation had a standard requiring their engineers to secure electricity from multiple substations. I thought that this kind of circuit method was meant for regions with frequent blackouts such as developing nations with poor energy supplies. However, I had to change my mind after this earthquake.

The Saturday and Sunday after the earthquake, I inspected the damage of the university facilities. This school has more than 100 buildings, and it took two entire days to finish the inspection even though we had multiple people on this job. As we predicted, we found damage to the buildings that were constructed before 1980 under the previous earthquake-resistant standard. Also, most importantly, the earthquake had scattered books in many of professors' offices, and those books had become obstacles particularly to inward-opening doors. As a result, some people had a hard time evacuating from their buildings. Based on this inspection, we use sliding doors in newly erected buildings for the university as much as possible.

Also, a critical theme for us is how to maintain buildings that have lost their infrastructure supplies, an integral aspect to improving the quality of earthquake resistance. Even before the 3/11 earthquake, as a part of our

BCP (Business Continuity Program) and LCP (Life Continuity Program), we, Kume Sekkei Co., Ltd., proposed to design buildings with self-sufficient water and electricity systems in case of a disaster. When we accept any project, we make it mandatory to discuss these systems with our clients. We just completed a building with the BCP and LCP standards last year in the Chubu region (central Japan) and are currently designing a hospital with the same concept.

Fukushima within the Configuration of the U.S. Cold War Strategy

Yuko Yamaguchi

Naoki Sakai

Ichijo Muto

This is the transcript of two interviews conducted in March 2012 as part of the Cornell East Asia Program symposium, "Japan's Earthquake and Tsunami One Year Later: How Can We Bring Closure to Crises?"



INTERVIEW WITH YUKO YAMAGUCHI, INTERVIEWED BY NAOKI SAKAI, TRANSLATED BY JOSHUA YOUNG

Watch the video of the interview

When I went to college after graduating high school, there was absolutely no critical perspective toward nuclear power. There was of course no nuclear engineering department at the University of Tokyo at the time [in the 1950s]. Later on [in the 1960s] we had the student protest movement

against the university system. During those struggles Mr. Takagi and I realized that scientists at the university could not be faithful to their sense of social responsibility. Knowledge production was called into question in the student protest movement. Knowledge itself was problematized as a matter of politics. And this questioning of knowledge had a major impact on the student movement. Each of us responded to this question differently; we were young and at the beginning of our careers. For those of us who took this question seriously and were starting out as young researchers, it was impossible to avoid asking whether we could possibly do our scientific work outside the proscriptions imposed by our employers, be it the government, a university, or a corporation. This was a critical problem of "the microphysics of work-place politics." It is in this context that in his later life Mr. Takagi came up with the idea of the "citizen scientist." In contrast, those intellectuals who supported nuclear power were untroubled by this question. You mentioned this question of the micro physics of work-place politics in a note you sent me a few days ago. We are conditioned by this physics, which has created an antagonism among us, researchers, between the supporters and the opponents of nuclear power. Antagonism over nuclear power is not only about policy; it has to do with the way of life and thought from the 1960's until today. The fundamental meaning of the March 11 Fukushima disaster is the history of this antagonism.

Yesterday when I interviewed Mutō Ichiyō, he talked about postwar Japanese history. In short, he demonstrated how problematic the idea of the peaceful use of nuclear power is. He claimed that this idea was part of the U. S. global military strategy of the 1950's when the phrase "peaceful use of the atom" was invented. The Japanese state took clever advantage of the U. S. strategy so as to establish the nuclear power industry in Japan. But you cannot agree with Mr. Mutō, can you?

As a general assessment, his view is right. Basically, I agree with his recent book on Japan's nuclear armament. In the 1950's, who in Japan understood the U. S. strategy? The question is, who on the Japanese side decided on these policies, what group in Japan? What I am interested in is to ask what were Japanese physicists doing at the time? I understand Mutō's point of view, but for me as a scientist, I want to know whether on the Japanese side

there were scientists in that group who went along with the U.S. nuclear strategy.

That is something I wanted to ask you. During the war, evidently, Japanese scientists were working on a nuclear weapons program--though I'm not certain how feasible they believed their nuclear project was. Japanese physicists were fully aware of the possibility of using nuclear science to develop nuclear weapons during the war. In Japan, nuclear science was fully integrated into the Japanese state's structure a long time before the end of WWII. Thus, it is not surprising that this complicit relationship should remain in place postwar. Almost every nuclear physicist in Japan was involved in the Japanese state's military program.

Every single Japanese nuclear physicist was involved during the war. After the war, almost every one of them. Strictly speaking, to some extent Yukawa Hideki resisted this complicity. But I'm not sure if these few acts were at all effective. In the case of nuclear armament, the overwhelming majority of Japanese scientists were against it. But in regard to the peaceful use of nuclear technology there was not any dissent, I think.

It's a real problem that the ethics of intellectuals and scientists, in the end, were always posed in terms of their loyalty and devotion to the country or the nation.

Yes, it is a problem. At least in Japan education is an obstacle, what is taught in school. Let me show you a very interesting thing. It is a section of a U. S. school textbook called "Hall, Science" (1996).

Let's show this diagram to the camera.

What has been done in this U. S. textbook is genuinely impressive. In this science textbook for 4th and 5th graders, there are several pages devoted to nuclear energy. This illustrates how a nuclear pressure reactor produces energy. It says that, for people on the outside of the plant, the buildings appear clean and white, with no smoke or anything coming out. That's

where power is produced, and inside of that is this: what is pictured here in the diagram. Thus, power production is explained in its basic mechanism. But what is surprising is this: this textbook actually says that it is not certain whether or not the processing and storage of nuclear waste is safe. This textbook also mentions that there is a possibility of the failure of the cooling system for the fuel rods. Evidently the textbook was prepared after the Three Mile Island incident, so it tried to learn from that accident. And one more thing: in the Q&A part of this textbook, it asks primary school children to respond to both sides of the debate on nuclear energy: on the one hand, nuclear power seems quite clean but on the other, scientists have to worry about exposure to nuclear material. So, it asks the children to judge for themselves what they think of the debate. This textbook actually poses the question “what kind of thing is atomic energy?” And “what merit or demerit does it have?” In Japan there is no such textbook. The question is never asked. In order to sustain the civil society, you cannot hide contradictory views or opinions that are inconvenient to the authorities. That is the lesson the March 11 Fukushima disaster taught us. Yet in Japan the repression of contradictions or inconvenient opinions has been taken for granted by the state bureaucracy and business. So, those in the state bureaucracy and business could not figure out what to do after 3/11. The data of SPEEDI could have been released earlier to reduce the effects of radioactive contamination. It is clear that the age when people’s economic and social well-being can be comprehended and judged within the scope of one nation is over. The age when usefulness in life – in which I would like to include the conception of industrial time – can be promoted within one state sovereignty without regard to other nations, other regions, other peoples --- that age is over. Essential things in life go beyond the scope of one nation. This is best shown by biodiversity, not just of humans but of other life on earth. And now, immediately, we need to make this point in our education of young people, in textbooks and the like. Children who are taught to be aware of biodiversity and social responsibility will eventually become scientists, and, hopefully, they will be able to sustain an ethical sensitivity to science and knowledge. This is what Mr. Takagi’s idea of “citizen science” attempted to explicate. “Citizen science” is a modality of knowledge production, science generated from the perspective of citizens, from within people’s daily life.

To try to grasp science from these other perspectives. To conceive of a new modality of knowledge production outside those rationalities imposed by state bureaucracy and corporations.

In addition to the failure in Japanese education, the Fukushima disaster disclosed the disingenuous role of mass media in Japan. And this is nothing new; it is something that has been evident for some decades and has often been pointed out by foreign reporters stationed in Japan. It has been pointed out that Japanese media and reporters are “spineless.” They have no clear sense of their professional mission as journalists and are only aggressive in the pursuit of lucrative scandals. But as soon as the story veers away from that track toward some political situation, they pull back from it. They don't investigate thoroughly and do not delve into the records of the past as much as they should. So, you may say they are soft, but really they appear anxious to accommodate themselves to whatever is the dominant opinion. They are afraid of standing alone, isolated. Japanese mass media failed to serve an absolutely essential function for the civil society. The major national newspapers did not report about what was going on within the so-called “nuclear village” after the Fukushima disaster. They must do some soul searching. Including NHK [Japan National Broadcasting Company], all the public press has been useless.

Well, as you say, from immediately after the incident, NHK has invited many opportunist scholars from Tokyo University and made them say what the government and Tokyo Electric Power Company wanted them to say on the problems of the Fukushima reactors. From the viewpoint of those of us who have been criticizing the nuclear industry and the Japanese government, their selection of scholars is just outrageous. But NHK has been doing that for a long time. That structure is beyond our comprehension.

I wonder how such a program could be justified within the NHK. Were there any who complained about such a policy? I cannot understand it, either. Tokyo Shinbun has been active in reporting on the problems of nuclear power. They collect

information widely and investigate news sources thoroughly. But Tokyo Shimbun is an exception. Many young idealistic people join the world of journalism every year, yet generally speaking, they are tamed and deprived of their idealism. Is it because of a structure of the state?

INTERVIEW WITH ICHIYO MUTO, INTERVIEWED BY NAOKI SAKAI

Watch the video of the interview

1954 was a very, very important year in many senses, but one important thing that happened was the Bikini Atoll incident. On March 1, an American hydrogen bomb was detonated for experimental purposes on Bikini Atoll in the Pacific. This caused the radioactive exposure of the Japanese fishing boat Lucky Dragon #5. Twenty-three Japanese fishermen were exposed to what was called “the ash of death,” radioactive fallout from the nuclear explosion. The Bikini incident triggered a tremendous popular movement, and that movement was one of the two or three major, mass movements in post-war Japanese history. The Bikini incident started the first of these mass movements. Out of it came a sort of permanent movement that from the beginning addressed both world public opinion and the governments of the world. This initiative led to an international movement and the first world conference was held in Hiroshima in 1955.

I was employed by that movement as a staff member in charge of the international section. I enjoyed the work very much. It was a very vivid, sort of active and high-spirited movement. And I was young and so I did not hesitate to accept the job offer; I went to Hiroshima for the first time in my life and, of course, visited the Peace Museum. Then I walked along the route, and at the end there was another door. That door opened and I stepped into the annex, a brightly lit place, not very large, but yellowish as I remember. It was a great contrast to the grey and darkish atmosphere of the main hall. It was such a nice, but strange place, and it smelled of the occupation forces. The occupation forces had a certain soapy, hygienic smell. It was not that smell exactly, but the place instantly reminded me of those forces. This was my impression of this yellowish, bright place.

Anyway, what was this strange place? It was the special room for the exhibit of the peaceful use of atomic energy. [The exhibit seemed to say,] “Here is

the future of humanity, the bright future of humanity..." Supposedly that was all thanks to the great achievement of modern scientists: the creation of nuclear power. Actually, I was stunned and speechless. I went through this exhibit, but I couldn't understand why it was there. At that time, I didn't investigate any further. I was working for the anti-nuclear bomb movement, and atomic bombs were my focus; I was not particularly concerned with the peaceful use [of nuclear technology]. And so, I set that aside and buried that memory... until the catastrophe in Fukushima.

Eventually two things, Fukushima and the exhibition of the peaceful use of nuclear energy, came together for me. I went back to some writings of those times, by Professor Ichirō Moritaki (1901 –1994), philosopher, activist, and leader of Hiroshima, who was widely regarded as a spiritual guide for the entire anti-bomb movement. He recalled that he encountered the idea of the peaceful utilization of nuclear power for the first time in 1955. In 1955, the victims of the atomic bombs came out and spoke in public for the first time. That year, a proposal also came from the United States that a nuclear power station should be built in Hiroshima. It was proposed by a Democratic congressman. This was Moritaki's first encounter with the idea of the peaceful use of nuclear power. In 1956, the following year, an exhibition of the peaceful use of nuclear power came to Hiroshima.

I think that three factors led to the presence of nuclear power generation in Japan. First, America. Second, the Japanese desire to have nuclear bombs. Third, a philosophical and ideological tendency to accept whatever is new, whatever is represented as an achievement of science – development, economic growth, prosperity etc. Of these three factors, the first – the American initiative – began to work in 1956, because this exhibition, a part of an international project, was brought to Japan to up-root the so-called "nuclear allergy." And specifically, it should be held in Hiroshima as a remedy, to overwhelm the anti-bomb feeling and the image of nuclear power as a bomb, to replace it with the image of the good guy.

Moritaki met Futsi, the president of the American Cultural Center, who was in charge of the exhibition in Hiroshima. The American Cultural Center promoted an exhibition for the peaceful use of nuclear energy in Hiroshima. Everybody there, the city government, university, newspaper, had to support the exhibition, following President Eisenhower's famous speech at the United Nations on "atoms for peace" in the previous year. Futsi proposed holding the exhibition at the Hiroshima Peace Museum. But the museum was not big enough, so all the atomic bomb exhibits had to be moved to make space for this "atom for peace" exhibition. You cannot say that the

exhibition was welcomed by the people. Moritaki told Futsi that the American Cultural Center should not use the [Hiroshima Peace] Museum. Then Futsi replied, “we will overwhelm Hiroshima, with [the idea of] peaceful use.” Futsi repeatedly said this, according to Moritaki. No doubt, Futsi's determination reflected the will of the United States government and its people, a will to overwhelm the global anti-war movements. This point has been documented and studied by many scholars and journalists including the NHK, the Japanese semi-governmental Broadcasting Company. NHK produced a very interesting documentary, depicting the Central Intelligence Agency and a Japanese wartime intelligence officer, Matsutarô Shôriki (1885–1969). Matsutarô was a war criminal imprisoned in Sugamo Prison after the war who established the Yomiuri Shimbun, the largest national newspaper in Japan. This documentary even disclosed the CIA code name for this operation for the peaceful use of nuclear energy. Thus, American strategies for Japan after the end of the Allied Occupation of Japan have been well-documented. These historical documents, which clearly show how threatened the U.S. government was by those anti-war and anti-nuclear bomb movements, can be read today in such archives as the Library of Congress.

It is interesting that the phrase “peaceful use” is only used for nuclear power. It is never used for petroleum; we have never heard of the “peaceful use of iron.” Surely only mad scientists think of this extremely dangerous technology in order to boil water and feed steam into turbines. Globally, it is evident that the peaceful use of nuclear energy was part of the Cold War strategy.

Thus, the American factor was present from the beginning as far as nuclear power in Japan is concerned, and it continues to be present until now. But, unless the Japanese side had wanted it, America would have had difficulty to establish this kind of relationship [between the US and Japan] in the nuclear industry. There were certain people, many and various groups who wanted the nuclear industry. But the main force was a political one, connected to the name Nakasone Yasuhiro (1918–2019).

So, it was accidental, but very ironic, that the day after the Bikini Atoll incident, March 2, 1954, the first budget for nuclear power was presented to the Japanese Diet by Nakasone Yasuhiro and his colleagues from different parties. And the person presenting that budget explained why Japan should have nuclear power development, why they should study nuclear power generation. The reason cited at the time was astonishing, because it was a military one. He started with an explanation of how the military technology

was developing. He said that this technology was expanding so fast that we [Japan] would fall behind unless we trained the young generation to cope with the situation, that is, enable them to handle such weaponry. Otherwise, we would have to be satisfied with old, used-up weapons provided by the U.S. under the Military Security Agreement (MSA) which had just been signed.

Hence the motivation was explicit from the beginning. But people stopped expressing the real intention after the budget was passed; it was only once, at the beginning, that the military implication was stressed. Instead, there was another channel that was opened, of a legal nature. While the nuclear power development itself was a material basis, the other was a legal foundation. This was laid by Kishi Nobusuke (1896–1987), who was fresh out of Sugamo Prison [as a war criminal]. In 1957 he had already become Prime Minister of Japan. And he was the first one to tell Parliament that keeping nuclear weapons illegal was not good. He didn't say that having such weapons was a good idea, but rather he said that having certain such weapons was not against the Constitution. And this reasoning was later repeated by various conservative governments. So, it is still the official interpretation of the Constitution. In that process the core, the political-industrial core, of the Japanese nuclear industry emerged. This political-industrial core is often called the "nuclear village." It is equivalent to the military-industrial complex in America.

Actually, it was in the 1960's that nuclear power generation was adopted in Japan. In 1966, the Tokai nuclear power plant was opened. Then a rapid expansion of nuclear industry followed. Now there are 54 nuclear stations, more than half of the total number of such stations in the U.S.

In Japan, the military-industrial complex is not as strong as it is in America. You shouldn't underestimate it, but its size is far smaller. However, the nuclear village complex has a very special position in the Japanese economy and society and politics. It encompasses bureaucracies, electric power companies, reactor makers, scholars, and the media. It was fully formed during the Sato government period. This was between '65 and '72. Yes, Sato Eisaku (1901–1975) was Kishi's brother. And he's a Nobel Peace Prize winner. He's the one who actually seriously studied and pursued nuclearization or nuclear armament.

This was a very crucial period in many senses. In 1962, China became a nuclear superpower. The Vietnam War, China's nuclearization, and the Soviet-China conflict all took place. The Sino-Soviet confrontation was a

dangerous one that could have developed into a nuclear war. So, around that time, nuclear power was key. Henry Kissinger (1923–) pursued an expansionist policy, ultimately toward a nuclear war, so he wanted the other side, the Soviet Union and China, to step away from the possibility of a nuclear confrontation. This crisis ended with the U.S.-China rapprochement.

The end of the Sato Administration came in the midst of the Nixon-Kissinger period. This was a very important turning point. Sato decided that Japan should prepare itself for nuclear warfare and arm itself with nuclear weapons. But previously, as soon as he became prime minister, he went to Washington to meet Lyndon B. Johnson (1908–1973) and his Secretary of State, Dean Rusk (1909–1994). Rusk asked Sato what Japan would do vis-à-vis a China armed with nuclear weapons. Sato said, “Although Japanese people do not like nuclear armament, I am for it.” Sato said this deliberately. But America didn't want Japan to go nuclear. So, Sato said, “Okay, we can build [nuclear weapons], but we won't build [them]. So please continue to place us under your nuclear umbrella and return Okinawa without nuclear weapons.” So that was the sort of a deal that he wanted to make. But it did not work at all because America wanted Japan to sign a secret agreement. This agreement has now been exposed: it says that, in case of emergency, America can bring nuclear weapons in [to Japan]. Sato's deal didn't work. Upon returning to Japan, he triggered a serious study of the technological, economic, and political feasibilities of Japan's nuclear armament.

But that nuclear card was used by America later, in fact, by Henry Kissinger, in dealing with China. In 1971 there was the Kissinger-Zhou Enlai discussion, the full text of which is now available. They started the discussion with Vietnam and Korea and so forth. But in 1969 there was the Sato-Nixon joint agreement which related to Okinawa's reversion, and also Japan's increased military commitment to the security of Korea and Taiwan. This was a very harsh anti-China commitment. Zhou Enlai did not approve of this. To Zhou, who disliked anti-Chinese Japan, Kissinger replied, “Okay we can withdraw from the Far East and let Japan go free. But that would mean that Japan would be a nuclear power. Are you ready to accept that?” He used Sato's nuclear card to justify America's presence. And that's the beginning of the “cap of the bottle” theory. So, the Japanese nuclear industry, the “nuclear village,” is not just an economic or energy industry. It's a security matter at the core of the national security consideration of the Japanese state.

The Role of Lawyers in Nuclear and Natural Disasters

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This is the transcript of a presentation and an interview conducted in March 2012 as part of the Cornell East Asia Program symposium, "Japan's Earthquake and Tsunami One Year Later: How Can We Bring Closure to Crises?"



ASHINA YUKI "WHAT ROLE SHOULD ATTORNEYS PLAY IN NUCLEAR AND NATURAL DISASTERS?"

I registered with the Shizuoka Bar Association in 2008. Prior to moving to Shizuoka, I worked as the inaugural director of the Soma Himawari ("Sunflower") Foundation Law Office in Fukushima's Soma City. The Himawari Law Office (Himawari kikin houritsu jimusho: ひまわり基金法律事務所) is part of a program by the Japan Federation of Bar Associations (JFBA) to establish law offices in areas with attorney shortages (shihou kaso chiiki: 司法過疎地域- literally "attorney-depopulated area"). JFBA provides funding to their members to open law offices in these attorney-scarce areas. This

fund is called the “Himawari Fund” (Himawari kikin: ひまわり基金) and is supported by the JFBA membership fee (JFBA started this program in 1999).

The East Japan Earthquake caused devastating damage to the entire Fukushima Prefecture, including the Pacific coast of the prefecture where Soma City and my previous law office are located.

Even though I lived in Soma only for a short while (for two and a half years), I’m very much attached to this city, and I really like it here. With another attorney, I opened an office in this “attorney-scarce area,” and we were the only attorneys in this area of approximately 12,000 residents. Therefore, the work kept me extremely busy, but, at the same time, I had lots of opportunities to find joy in serving others as an attorney.

While I was serving in Soma and becoming more psychologically attached to this place, I devoted myself to instituting the rule of law in this beloved city. The smiles and tears of the residents encouraged me to serve them, and some of my days were extremely busy. The number of attorneys in Soma increased since then, and there are currently eight attorneys serving the area. The disaster took place just when I was beginning to think that the local residents in Soma finally started recognizing what attorneys could do.

The basic premise of an attorney’s work and the rule of law is that we live in the areas where we work. Our work is rooted in the livelihood of local residents. The Fukushima nuclear disaster, more than the tsunamis, broke this foundation. My two and a half years in Soma were also wiped away by the tsunami and now the radiation contamination from the nuclear power plant. The sorrow and anger within me are what drives me right now. If I don’t do anything for Fukushima right now, then I would wonder why I even became an attorney.

The Characteristics of the Nuclear Disaster

3/11 was an unprecedented disaster consisting of the big earthquakes and the nuclear disaster. I think that the effect of this disaster has two distinctive characteristics: (1) the effect of this nuclear disaster is serious and covers a wide geographic area, and (2) this disaster has taken away the future of the local residents.

(1) Its wide geographic scope and serious effects

I would like to start with the damage from this nuclear disaster. Currently, there is an exclusion zone of a 12-mile (20 km) radius around the Fukushima

Daiichi nuclear power plant, and nobody is allowed to enter this zone in principle. It is expected that nobody can live in this area for a few decades. The residents in this zone lost their social infrastructure and were literally “uprooted” from this zone. This means that they lost everything such as their land, house, job, school, and homeland.

Also, some of the residents who lived outside of the exclusion zone inevitably decided to move out for their children's health. It is estimated that approximately 100,000 residents have evacuated from Fukushima, and they are called *the jisyu-hinansya* (voluntary evacuees: 自主避難者). Even if they lived outside of the 18-mile (30 km) radius from the nuclear power plant, they were still near the plant. They worried about the unknown physical effects of the diffused radiation and so they evacuated to different areas to save the future of their children. In this sense, the label “volunteer evacuee” fails to explain their difficult reality.

At this time, many residents have evacuated from Fukushima. However, there is a serious gap between those who stayed in Fukushima for various reasons and those who evacuated. As a result, the *kizuna* (bond) among the local residents has been completely destroyed.

(2) The loss of local residents' future

Another characteristic of this nuclear disaster was the loss of the future for local residents.

This nuclear disaster stalls any kind of recovery plan. What should they do after removing debris, restoring their lifelines, building houses using various kinds of public funding and recovery efforts, and restarting local businesses? Due to the radiation contamination and rumors, neither farmers nor fishermen can take any further action. The nuclear disaster is smashing any local hope which could have grown out of their hopeless desperation.

The victims are thinking about a future which is much further away than we can imagine. Do you know what the victims are saying? They say, “Had I known that this kind of hell was coming, I would have wished that the tsunami would take me away.” I became an attorney eight years ago, and I've never heard such a sad expression until now. We can't say anything back. This nuclear disaster easily crushes the strong spirit of a person who survived the devastating tsunami.

In the case of a nuclear disaster, the victims can get a certain amount of compensation. However, even if there were an infinite supply of financial resources, it would be impossible to fix this kind of damage. Several hundred thousand victims got irrevocable damages from this nuclear disaster (I would like to come back later to the problems with compensation claims for this nuclear disaster). As attorneys, we have to keep in mind that we are supporting those who lost “what they cannot buy or regain with money.”

Also, as I discuss the loss of the local residents’ future, I would like to mention that the number of children radically decreased from the Pacific coastal side of Fukushima Prefecture. The reason is very tangible. The children have been evacuated to avoid exposure to land with radioactive fallout. However, what kind of light do you think is out there in the land without children’s smiles? If they do not grow up in Fukushima, do you think that they will have any psychological attachment to this homeland? Will they come back, or can they come back? What kind of future can you imagine for the land where children will not come back?

Furthermore, even after they escape from Fukushima, they may face discriminative treatment from thoughtless people. One of my attorney friends moved to Tokyo to protect his young children after the nuclear disaster, but he is hiding the fact that he is from Fukushima. Also, as far as I’ve heard, there have been cases in which evacuees changed their “Fukushima” license plates out of fear of vandalism, and in which their children were bullied because other children thought that the evacuees carried and disseminated radiation. Evacuees have been cut off from information, and they need legal support.

Role of Attorneys

This nuclear disaster has brought such devastation. Now, what role should attorneys play? I think we have to engage in the following two things: (1) we have to accomplish a comprehensive compensation system for the victims of this disaster, and (2) we have to get involved in the legislative process for a special recovery support act.

(1) Comprehensive compensation

It sounds easy when we translate this into a written format. However, we can get lost when we start working on this issue and hit a big wall.

There are more than several thousand victims from this nuclear disaster, and they are currently dispersed all over Japan. It is also not easy to legally sort them out because the nature of their damage varies victim by victim. Moreover, we still don't know when this disaster will stop causing further damage. The exclusion zone was also an attorney-scarce area (bengoshi kaso chiiki: 弁護士過疎地域) when my partner and I set up our publicly funded law office. The local residents do not have a strong consciousness of their legal rights; they are not familiar with an "attorney." They don't voluntarily visit law offices, and attorneys have to actively reach out to them. However, we don't have enough attorneys on the ground.

At this moment, there are three options for victims seeking compensation: (1) fill out TEPCO's claim forms, (2) appeal to the ADR (Alternative Dispute Resolution) Center on Damage Compensation by the Nuclear Power Plant Incident, and (3) appeal to the courts. However, all three options have pros and cons, and there currently is no ideal option. With any of these options, I think that it is an attorney's long-term responsibility to fight for a system that provides the most comprehensive compensation for the victims and prepares a path for victims to easily move on with their lives.

(2) Involvement in the legislative process

Attorneys have to accept that one of the characteristics of this nuclear disaster is the fact that "money can't restore the damage." Our role is to translate long-lasting support systems into laws such as various forms of recovery support systems, a medical and health monitoring system, a continuous information support system, a ban on unjustifiable discrimination, and proper management of a victims' registry (these things are vulnerable to political games).

We need an unimaginably long duration of time to engage in these two roles. In this sense, what I think is really important is probably for us to always remember the victims and to constantly think about what we can do for them. Even if it is something small, there is a significant difference between "taking action" and "not taking any action." Moreover, if we "continue" doing so, the value of our actions will increase as we make a long-term commitment.

Lastly, the Japan Federation of Bar Associations (JFBA) is proactively sending attorneys to Fukushima.

However, support should go not just to the affected areas. Because there are many victims dispersed all over Japan, there are many other opportunities for providing legal support, such as outreach to the victims living in your area.

Even if you are living far away from the victims, you can shorten the psychological distances between you and the victims by using your imagination. We can probably make helpful policies and laws for victims if we are creative. Now more than ever, people need the fortitude of attorneys who believe in the power of language and the power of logic.

INTERVIEW WITH YUKI ASHINA, INTERVIEWED BY MIYAZAKI HIROKAZU, TRANSLATED BY PAUL MCQUADE

Yuki Ashina, who contributed an essay to the February 2012 forum, is a lawyer currently based in Shizuoka City. Ashina was dispatched to a coastal region of Fukushima Prefecture (Hamadōri), an area with only two lawyers for a population of 120,000, under the Himawari Foundation system, previously established by the Japan Federation of Bar Associations as part of the Control Measures for Judicial Underpopulation and Maldistribution. She has experience working in a legal office established in Soma, a city in the same prefecture. Hamadōri is an area heavily damaged by the nuclear incident of March 2011, and Ashina, who for some time has been involved in the area in her capacity as a lawyer, has become involved in the issue of compensation following the nuclear incident in 2011 in cooperation with lawyers from around the country. Miyazaki met with Ashina in Tokyo in December 2013 to discuss her activities since the disaster.

More and more problems are arising concerning compensation in Fukushima. One of the reasons given for this is the artificial and arbitrary categories used to determine who receives compensation.

The most concrete problem we are facing is that compensation is being determined based on artificially defined areas, rather than looking at the victims on a case-by-case basis. Even putting aside the question of whether or not the amount itself is appropriate, for places deemed evacuation zones, there will be a corresponding amount of compensation. But take for

example one of the cases I'm dealing with, which involves a family who were living not three kilometers from the evacuation zone. These are people with a small child who were just a stone's throw away from an area deemed no longer inhabitable, and who moved to Shizuoka for safety. In the current system for compensation, for people like this, they just come up with excuses like, "Oh you were a full three kilometers away," or, "Even though nobody explicitly told you evacuate, you went ahead and did it anyway," "We're not going to pay out compensation for people who decided to leave on their own." I mean, it just flies in the face of normal common sense.

The evacuation zones are something originally created by people who decided to leave on their own, and whether there is any scientific rationality to these areas has never been looked at. The dispersal of radioactive material from the incident has absolutely no relation to the distance between concentric circles, and it is an objective fact, demonstrated by all sorts of data, that its dispersal varied according to the weather and the direction of the wind at the time of the incident. I think that even for your average citizen who isn't a scientist, the fact that the atmosphere isn't something you can apportion by distance is just common sense. It's precisely because it's a given the world over that the atmosphere has no national border that pollution of the atmosphere and the oceans becomes an international issue. The fact is, those people who were living in Hamadōri in Fukushima never really wondered just how many kilometers their houses were from the nuclear plant. And a system that, despite all that, decides whether or not they receive any compensation based on artificial standards that then get thrown on to these places after the nuclear incident, however you try to think about it, makes absolutely no sense. And because the system makes no sense, the division among the residents is deepening because the amount of compensation received is completely different just because of a random line drawn by someone who isn't even involved.

However, the more fundamental problem is, what do we class as damage from the nuclear incident in the first place, what are the measures taken for recovery, and what will the reconstruction of Hamadōri look like? Can all that be resolved with money? I think that if we try to simply fix everything with money, taking a proper count of all the victims and making a sincere attempt at reparations for all of them, then the Japanese state finances would undoubtedly go bankrupt.

The nuclear incident has done irreparable damage to Hamadōri. Whether this damage is something that can ever be taken care of within the framework of compensation, well, that point is something that has to be

taken to heart by the lawyers involved in the issue of compensation following the nuclear incident, as well as the grief of the residents, which will never heal, alongside their frustration.

Are you dealing with many cases like this in Shizuoka?

There are a few, yes. What they all have in common is that people are just trying to protect their families. Obviously, there are as many different circumstances as there are evacuees. There are people from inside the evacuations zone and from outside it. There are people originally living in Shizuoka, and others who moved there for work. If we take these cases as examples, though they all appear different, I think there's a lot of people who still want more out of life, who, even among those similarly affected by the incident, remain independent. And although it also involved a certain amount of luck, these are people who had the strength to get themselves somewhere with a lawyer. What I do each day, while it is sometimes hard, is usually with a sense that I can't abandon the people who have made it this far.

But what's more difficult than that is the fact that I'm aware that there are people out there whom I can't help. People who can't move, even though they want to, and when I thought about those people who can't make their voices heard in even the slightest, it breaks my heart. This isn't just the elderly, or victims of the disaster, but maybe members of the family, or people living in the area who are vulnerable, or the economically disadvantaged as well — they can't make their voices heard either. For example, there was a young mother who was taking care of her in-laws while also bringing up a young child, and she told me that she spent a long time agonizing over the fact that as a mother all she wanted to do was take her baby and run, but as you might expect, she was worried about what the neighbors would think, and when she thought about how she would be able to eat if she left with the baby and got divorced, she realized it was up to her to take care of everything.

This isn't the only example. There are clearly lots of people in different circumstances, and we have no choice but to pick from among them. But when it comes to those people I just mentioned, who are trying to make themselves heard but can't, you have to learn to strain your ears to hear them, and strain your heart to feel them, if you're going to pick up on them. Going back to what I just said, I personally cannot get on board with the idea that giving those people monetary compensation is somehow a

resolution. The problem of how we are meant to respond to damage that can't be monetarily compensated is on my mind morning and night.

You aren't just insisting on work being done in a legal form, but on the need to offer support with the creation of a network which relies on the skills of various experts.

Not isolating people like this, who are vulnerable and voiceless, I think, is extremely important. One thing I learned when I was newly appointed to Soma is that there are limits to what a lawyer can do. As professionals, lawyers are only involved in the legal portion of disputes. And their work is primarily concentrated on getting to the issue entangled in all the various threads of the dispute within a given timescale. But at present there are many things that, even if you untangle them from all the arguments around them, won't resolve the fundamental problems. Lawyers are involved for only a brief time, and in a small portion, of people's lives, and in a very small capacity, certainly not capable of solving everything.

For example, when I was in Soma, in problems frequently associated with debt, even if the currently existing debt was manageable, if you didn't find and fix the original reason for taking on that debt, then you just ended up back at square one. Though the problems associated with short-term loans seem as though they can be resolved with "debt adjustment" and "personal bankruptcy," the fundamental problems that person is dealing with and the issues in their life can't necessarily be fully addressed by the efforts of a single lawyer.

In dealing with a lot of cases, what I've learned through a lot of suffering and a lot of hard battles, is that because a lawyer can't do everything, it's necessary to create networks of different people to work together hand in hand to combat the underlying pathology of a social problem. With the debt issues, at the start it was just me checking household accounts and giving advice on expense management, but it was soon too much to handle. At that time, I made up my mind to speak to the city office, and slowly the district welfare officer, the social welfare council, and so on, came on board. There were lots of individual discussions, like someone would say I'm worried about how this person is handling things, so I'd like to see their expense book once a month, or I think it'd be a good idea for people with alcohol and gambling problems to get periodic counseling, so I'd like to take them to a place that offers mental care. In doing things like this, which I would never have been able to do alone, we built a network, and with the

right people in the right places giving us help, we could respond to individuals' issues, and eventually, as we kept pushing ourselves to deal with each case, we gained experience dealing with larger societal problems. That was a huge turning point for me.

Based on this experience, since the nuclear incident I've been especially preoccupied with how we draw on the strength of people beyond the legal profession, and how we can keep gathering momentum. For example, when an NPO informs us that there is a relief event for victims of the disaster, then I ask them to make the event they're sponsoring the main focus instead. And I tell them that I'd like to take part too, in some small way, maybe in the form of a little slideshow about compensation, so that people can come for the show and have a consultation if they'd like. That way instead of making it into the kind of formal affair you normally have for these consultations, you have a place where the mothers can mingle with people the same age, and victims of the disaster can relax as well, and because we want the children that come with them to have as much fun as they can, I advise people to really focus on the things that are ancillary to the relief effort.

A new kind of litigation is emerging with the nuclear incident damages suits aiming at "full reparations."

That full reparations must be given out is something that I've also come to start saying, and as an idea, I believe that's absolutely right.

But the problem is, what constitutes "full reparations"? If we speak about it in technical, legal terms, the present system for damage compensation has at its base the idea that the price of something lost is monetarily compensated. For example, when someone is made paraplegic in a traffic accident and has to spend the rest of their life in a wheelchair, if they had been able to walk and lead a normal life before, then they probably would have been able to receive this much income based on the average Japanese income and they've lost that money, so that income ends up being the figure for the compensation. Or, if they are paralyzed, even though they haven't incurred any excessive medical expenses, they probably will have extra medical expenses over the next ten years or so, and so they end up receiving those expenses as their compensation. Determining what was lost in a certain accident or case, in other words, determining the losses and converting that into a monetary value, is at the base of the legal discourse on compensation.

But with the nuclear incident it's hard to grasp exactly what's been lost, and thus what the 'losses' are. For example, if you were forced to lose a job or a house because you had to evacuate, then when you try and determine the losses it's not so difficult to calculate an amount for the compensation. And let's say you won't be able to work in the future precisely because of this incident. Then it becomes a matter of compensating for the money you would have normally earned. And if your family would have, under usual circumstances, kept on living in the house as was, you would end up receiving the price of the house as compensation.

The problem is whether what was lost is really just practical things you can easily grasp, like a house or a job. What the majority of people lost in this incident isn't something that the legal profession is used to converting into everyday cash, it is home itself. It was the old school that still held a piece of your heart after you graduated, it was your grandmother's house where you caught cicadas in the summer, it was the excitement you felt going fishing in the neighborhood stream, it was being able to lose yourself reminiscing with the classmates you only managed to meet once every few years, and even then, only when you came home. How much would that come to? Can you even put a price on something like that? And plus, what was lost is different for each person. There are people who just happened to be there for work, and people who had lived in the area their whole lives.

This problem of how one goes about turning this "loss of home," which is different for everyone and hard to put a price on, into a monetary value, is a challenge that the legal profession has never directly dealt with. When you look further into the loss of home, you have to really look at how you convert damage that has stolen the hope people had, the futures they planned on.

It's a challenge trying to grasp these kinds of damage, but from the outset we have to also point out that until the present, "damage" has never been defined. Right now, even though we can't really feel exactly what was lost, after a few years have passed, we might be able to sense the scale of it. How we put into words, and how we make sense of, damage that isn't going away as time passes, but rather is being magnified, is an extraordinarily difficult task. Even if the full picture of the damage is impossible to grasp, anything we do after the survivors have passed is too late. It's a battle against time. And I can't speak to what kind of judgments will be passed down in the courts for those lawsuits that have just begun to take place up and down country.

In the aftermath of the 2011 Tōhoku earthquake and tsunami, several laws have been created for the purpose of victims' relief, but as for laws that had to be penned with a view to offering relief to the victims of the nuclear incident, there is only the "Law on Special Measures concerning the Statute of Limitations on Claims for Compensation for Damage caused by Nuclear Accident" (Established December 4, 2013, brought into effect December 11). In principle there is a three-year period in which one can make a claim for compensation, beginning with the date of the damage itself or from the time at which one became aware of it. However, under the special measures law, that period has now been extended to ten years.

This is a law specifically tailored to the reality of a nuclear incident. It is a law put in place so that no one can say that requests for compensation are no longer valid because three years have already passed since the incident in 2011. The victims of this disaster are somewhat relieved to be told that they don't have to rush to file a claim, and that they can take their time to deal with it.

The problem of time and the statute of limitations is a serious issue. For example, for public health hazards, it's impossible for the statute to start until the cause of the damage is known.

For compensation claims for acts of tort, you have three years from the time you become aware of the existence of the damage or of the perpetrator. In lawsuits for pollution-related illness, there's come to be theoretical backing for the statute of limitations to proceed from when the perpetrator is brought to light. For victims of pollution-related illness, symptoms like pain and numbness are foremost and you only work out later whether the cause of the symptom is actually something like mercury or cadmium poisoning. Well, then you have to have an investigation into where the substances that are causing the symptoms entered the body, and eventually find out that they came from factory drainage or pollutants released into the atmosphere or something like that. We've come to deal with cases by first ascertaining the cause: if it's industrial culpability, you can pursue companies for that, and so the point when the statute of limitations starts to count down is shifted to that point in time; not when the symptoms appeared, but at the point when you've discovered a causal relation between the symptoms and commercial decisions.

What's different in this instance from the pollution-related illnesses that have occurred in the past is that everyone the world over knows that TEPCO caused a nuclear disaster in March 2011, and so, at first glance, the point at which the statute of limitations starts counting down seems clear. Because the fact that an accident occurred is public knowledge, when we think about whose fault it was that residents were forced to flee their homes and lose their houses now, it's 100% clear that it's because of the nuclear accident. So, if the person you can pursue for culpability and the cause of the on-going results is clear, then the danger is that people will ask, hasn't the three years since the nuclear incident been more than enough time for a claim to be made?

But the truth is, you can't just file a claim so easily. For example, if we think about the cases we've been talking about, when people think about rushing to file a claim and the value given for the house they lost is low and thus they are only getting a pittance in terms of compensation, then there's bound to be a lot of people hesitant to file. Plus, the majority of people have their own problems to deal with and don't know what to do. They're at an endless set of crossroads: do they stay as they are in the evacuation zone, or go back to their hometown? Is the house so damaged that it can't be rebuilt? Or maybe if they repair it, they could live in it again. Maybe they'll buy a new house at some point and live there. So, there are people who can't file a claim because they can't decide on what to list as damage for the compensation.

Here, because the loss isn't yet determined, the statute of limitations should, theoretically, proceed from the moment it is. This is perfectly fine, but, sure enough, even though the period in which the incident occurred and the entity you can claim as responsible for it is evident, because the figure for the losses can't be determined, when I'm asked whether we can go ahead with it, as a lawyer a part of me is still unsure about mustering the courage to put my seal of approval on it. I'm personally anxious about whether I'd be shot down the moment I try in earnest to rebut the idea that if TEPCO is the one responsible then the point at which we discovered the source of the losses was March 2011 with the simple argument: the losses weren't determined then. And in light of this fact, well, I think it was necessary to unilaterally extend the period for the statute of limitations. Because thinking that claims could be filed in the three years since the incident occurred was so dangerous, I think it's fair to say that the necessity for a special measures law was higher than with previous cases of pollution-related illness.

In order to establish this special measures law, lawyers from across the country had to stand up and be heard. The lobby movement was especially passionate, and a lot of signatures were collected. I think we can easily attribute this result to the fact that the damage caused by the incident is becoming more evident as we go on. The individual municipal bodies of Fukushima Prefecture banded together to help as well.

In the lawsuits that are currently taking place throughout Japan, for what kind of damage exactly is compensation being sought?

What they're asking for depends on the location and the suit, but in general, everyone seems to be trying to fundamentally change the way we think about claiming damages. One item on the agenda is compensation for pain and suffering, which they're also pursuing legally. To make what was lost legible to a court of law, you have to carefully make the case for life before the incident and use data to demonstrate the fact that after the incident a community has been left in pieces. A lawsuit is taking place right now, for example, where they're claiming thirty million yen per person in compensation for the pain and suffering of losing their hometown/home.

And then there's a lawsuit for the voluntary evacuees, as they're called. Those people who have received compensation amounting to about the same as consolation money, and who at the least have the same feelings as those people inside the evacuation zone, and because they're in the same situation, with the same resentments piling up, say that at the very least they want to be given the same amount for pain and suffering.

To repeat myself a bit, for experts and regular people to think beyond the nuclear incident itself and seriously think about just what was lost in it, including, naturally, those whom this disaster affected, is, I think, the starting point. It's just not right to try and make it all go away by saying that everything's fine because everyone can get some money. I feel like we're doing something hugely disrespectful, like we're just slapping the survivors in the face with wads of cash. They must feel like they're being told to put up with it because they'll get paid. But the people affected by this disaster want people to understand that they're not just out to get money. "What we lost wasn't money, so money in and of itself won't bring it back." I want us, as legal experts, to pass these words on where we can. Dismissing the survivors as people to be pitied because of a stroke of bad luck just won't do. I want people to consider each and every one of them, as one of them.

I'm always wondering whether or not I can say something more about the hope that was lost. How I can possibly express the atmosphere of despair in the air, palpable every time I go to for a consultation in the temporary housing. For now, when people look at me, haunted, and say, "I don't know when I'm getting out of here. It might be that I have to stay here until I die. Is this a concentration camp?", the only thing I can do is write it down word for word; but what I'd really like to do is analyze what these words mean in more depth.

The idea that it's okay for me to give a set amount of money to these people, even though hundreds of thousands of people were affected by this disaster, or that it's okay for the nuclear plant to continue operations so long as this time it doesn't eventually cause another incident, is inexcusable. Leaving aside the fact that the risk of another disaster threatens underpopulated areas with huge amounts of damage, and that the installation of the power plant was a mindless political measure with the idea of simply discarding the regions themselves if an accident did occur, I don't think it makes any sense to just say that there won't be any more accidents, that it's safe now, without taking a long hard look at the problems and fundamental paradoxes of those measures. They're avoiding the reality of the situation. They're intent on burying their heads in the sand without taking a single lesson from this disaster.

In Japan, people are forgetting the earthquake and the nuclear disaster itself.

When I look at the survivors of the incident, the country, and the world which is forgetting it, it seems like those who've already taken so many hard knocks are beginning to think that they should forget it as well. Even among those people who have been desperately engaged in this issue, I feel like a sense of defeat, of powerlessness, has started to hang over them. It seems as though people are beginning to feel like they need to put an end to the issue, thinking that even if they say anything, it'll fall on deaf ears, that if they say something, it won't change anything, and even if they do say something all they're doing is getting themselves hurt, that the people around them think they're mad to keep going on about something that would be better soon forgotten about, that it was all just down to bad luck.

Naturally, I think everyone has this fierce anger building up inside them.

But that being said, then you have something like Abe's speech for the Tokyo's Olympic bid, and having to listen to what amounted to taking

Fukushima off the table and declaring that Tokyo is all we should care about. During the deliberation of the Special Secrecy Law, the moment we opened the public hearing in Fukushima, those in attendance protested against the law on the basis that covering up the issue of the nuclear incident would be a catastrophe, and regardless of this, the lower house of the Diet voted on it the next day. The feeling that so far people's feelings have just been calmly trod all over with muddy shoes is, well, it's still ongoing, and this kind of thing itself is obviously something that's becoming unbearable for those who have been hurt and are trying to keep going. People are beginning to think that, no, they don't want to be a "victim" any longer. I'm concerned that they're starting to get caught up in the feeling that if no one's going to listen to them when they say how little something makes sense or that it's not going to work, then they might as well not bother speaking in the first place.

I think that because our job as lawyers is to get close to the victims and restore their happiness, we have to encourage people to be strong and make their voices heard. I think we have to push for the voices of those affected by the disaster to be at the fore as we go about changing history, because hearing directly from them is so extremely important. I believe it's vital that we not be deterred from saying that there is a history of people who came before, who fought hard against so much in the past, and who made their voices heard in order to get what they wanted.

Whenever I have the chance to talk to law students, I always tell them, "It's a lawyer's job to give people hope in the depths of despair." I truly believe that right now is a crucial period for us. The truth is, where the victims are right now is the depths of despair. I believe we have a responsibility to keep telling people that we want to help them with all we have, to tell them to cry themselves hoarse, that it's still possible, even as they're sinking down into this mire of grief, to lift themselves up and out of it.

The Role of Economists

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This is the transcript of an interview conducted in March 2012 as part of the Cornell East Asia Program symposium, "Japan's Earthquake and Tsunami One Year Later: How Can We Bring Closure to Crises?"



INTERVIEW WITH YUJI GENDA, INTERVIEWED BY NARUHITO CHO

1.What is “crisis”?

[Professor Yuji Genda, thank you for taking your time to participate in this interview.] In this book, we are collecting the results of our online discussions on Meridian 180. You are one of the initial members of this project, and we would like to ask for your insights about “crisis.” By way of introduction, we would like to begin by asking you to briefly talk about your background.

I am an academic and I received my Ph.D. in economics in Japan. I have been writing papers and books on labor economics, especially labor issues in Japan such as income inequality, youth unemployment, and job creation.

Since the 2000s, Japanese people began to talk about how “there is no hope.” So I also work on “Hope Studies” (Kibougaku) which focuses on studying societies where hope disappears or emerges.

By starting this original research on “Hope Studies,” I met Hirokazu Miyazaki, Annelise Riles, and many colleagues in Meridian who are also interested in the theme of hope.

The main theme of this book is “crisis.” What does “crisis” mean? Japan experienced a major crisis in 2011 when the Great Tohoku Earthquake and the Fukushima Nuclear Disaster hit the country. Did the meaning of the word “crisis” and the way people understand “crisis” change in Japan through this experience?

When you look up the word “crisis” in a Japanese dictionary, it defines the word as “a dangerous moment or situation where something [critical] might happen.” A famous example of crisis in post-war Japan is the “Oil Crisis” during the early 1970s. During the 1990s and the 2000s, we also often heard the word “financial crisis” being used in Japan.

In my opinion, the word “crisis” in Japan used to have a strong nuance that it is “something external that could not be fully prevented.” The Oil Crisis came from the Middle East, and the financial crisis came from Asia during the 90s and from the United States in 2008. They were all major events that began from somewhere outside of Japan.

However, the Great Tohoku Earthquake in 2011 and the nuclear disaster significantly changed the way Japanese people understand “crisis.” The disaster showed vividly that crisis is not only something that comes from the outside but is also something that could suddenly emerge from within Japan.

The Japanese fiscal economy has also been in crisis since the 2000s, but the Japanese people did not seem to think of it too much before the earthquake. However, after the earthquake, many Japanese people began to seriously think about the existence of our fiscal crisis – the crisis that comes from within. I think this is why the majority of the public began to approve raising the consumption tax.

What about the meaning of “crisis” in economics, particularly in labor economics, your field of research? You introduced the concept of NEET (“Not in Employment, Education, or Training”) to

Japan, and you recently published your research on SNEP (“Solitary Non-Employed Persons”). Do the underemployed youth, NEETs, and SNEPs suggest a crisis that Japan is currently facing, or may face in the future? What kind of crisis would that be, and what kind of responses do they require?

When we discuss economic theory, we usually do not use the word “crisis.” The more often used term is “shock,” which means an “unexpected event that suddenly occurs.” Some shocks occur at a national level, while others concentrate on a particular region or industry. Some shocks are temporary, while others are long term. In economics, the important initial step in taking appropriate measures is accurately understanding the nature of the shock.

I have been focusing on youth unemployment in Japan since the 2000s. Unemployment in Japan until the mid-90s was low – it was around 2–3%. However, it began to rise since 1998, and 4-5% became the new standard. This is due to the increasing number of youths who are struggling to find jobs.

However, those young unemployed job seekers are not the only unemployed figures that are increasing. The “NEETs” who gave up on job searching altogether, or the “SNEPs” who, in addition to being jobless, do not have any interaction with friends, are also increasing rapidly.

The common issue among the NEETs, SNEPs and the underemployed youth (フリーター) who gave up full-time employment and work as part-time employees (非正規社員) is that they “lack hope.” There is an increasing number of youths who have lost hope and feel that “there is no future” at all in terms of jobs and future prospects. The youth have an abundance of valuable resource called time, and thus they should be more prone to feeling a sense of hope about their future. But the fact that the youth are in a situation where they cannot feel hope is, in my opinion, a crisis for Japan's future. What needs to be done, then, is to understand why this lack of hope is spreading in order to build an environment where the youth can build and nurture hope themselves.

2. The Role of Intellectuals, Especially Economists, at a Time of Crisis

One of the goals of the Meridian 180 project is to discuss the “roles of intellectuals at a time of crisis.” This could take place in

various forms. For example, one significance of your research is your identification of problems such as NEETs and SNEPs. Before then no one recognized their existence as such. What are the challenges of identifying, conceptualizing, and defining a “crisis” and what role do intellectuals play in resolving it?

When we deal with a crisis, I think it is important to shift its meaning from something that is ambiguous to something that is clear and defined. We need to transform a conceptually incoherent “uncertainty” to a “risk” for which many can share a common understanding. The responsibility of the intellectual is to play a central role in contributing to that transformation.

There are 600,000 NEETs and 1.6 million SNEPs. Although there are many people facing difficulties, nobody recognized their existence until we identified this problem. Unless the problem is recognized, there will be no progress towards its resolution, of course.

When I introduced the concept of NEET, some criticized me that my research will lead to discrimination against, and stereotyping of, those struggling youth. However, if the NEETs or SNEPs are discriminated against because of this categorization, it is not because they are being lazy or entitled. It is because of a social illness. And the role of the intellectual is to scientifically explain this social illness and resolve such misunderstanding.

What is even more terrifying than being misunderstood is being ignored. For those facing a crisis, continuous ignorance of the situation is the real crisis.

Economics and labor economics do not have a direct connection with crises such as the Great Tohoku Earthquake or the nuclear disaster. However, when we face such a major crisis, we need to work together and take an interdisciplinary perspective. How can economics help resolve a crisis like the Great Tohoku Earthquake?

In a time of crisis like the earthquake, economics should first strive to reveal facts. Those facts could become the basis for designing an immediate response, and also for preparing for future crisis.

Many lost their jobs due to the earthquake. When we used the tools of labor economics to conduct a large-scale survey to analyze their circumstances,

we found out a few important facts. First, many of those who lost their jobs due to the earthquake were actually the youth, the less educated, and the contract workers. Those who were in unstable employment situations were the first to lose their jobs. On the other hand, many of those who were full-time employees may have suffered some decrease in wages or hours, but they did not lose their jobs. We can explain this using the theory of human capital in labor economics.

There is another important fact. A lot of the people in Fukushima prefecture have been subject to unwarranted discrimination since the nuclear disaster. Some say that Fukushima residents are drinking all the time and playing pachinko (a gambling game) all day and making no effort to look for jobs – they are living off the compensation they received from TEPCO for the disaster. However, when we use the tools of economics to examine their circumstances, we find no evidence that the Fukushima victims are not looking for jobs.

If [the Japanese people] are not informed of these facts, the rumors that Fukushima residents are being lazy and are not seeking employment will spread. Such rumors will [eventually] be the only [“facts”] that will be recorded in history. Social scientists, including economists, must explain that such a rumor is false by introducing objective facts [to the public]. This is our role in a time of crisis.

There are, however, those who claim that intellectuals only talk among themselves, and would not be able to do anything to resolve a crisis. Even if we have an international and/or interdisciplinary discourse, if we cannot bring the results of those discussions into action, are they meaningless?

To be honest, whether you are an intellectual or not, there is not much any one individual could do at a time of major crisis. In fact, by coming up with an unrealistic plan and by forcing that plan into action, we might worsen the situation for those who are already suffering from the crisis.

On the other hand, there is something that each of us can do. For example, in my case, I have visited Kamaishi City – one of the cities that suffered from the tsunami – several times even before the earthquake as part of my research on Hope Studies. Based on this experience, there is something that I am certain of in terms of what the people at the site of the earthquake, including the Kamaishi residents, most strongly hope for after the earthquake. And that is to “not forget.” The victims of the earthquake do not

want this to easily become a crisis that has gone by – an event in the past. It is thus our duty to keep [looking after] the people continuing to struggle from the [aftermath of the] crisis.

Now that several years have passed, most of those who did not directly experience the earthquake are increasingly forgetting about it and the nuclear disaster. However, for those victims of the earthquake, the crisis is still present and continuing. This is why I believe that it is my way of “taking action” to continue to disseminate the results of my data analysis and what I learned by speaking with the earthquake victims.

Intellectuals, especially researchers, have the freedom and the duty to follow their interests throughout their lives. By slowly but definitely building on this freedom and duty, I am certain that we can find some suggestions or insights for the future – even if we cannot find an immediate resolution.

In other words, [today's] intellectuals must take to heart the messages sent and actions taken by earlier intellectuals during the various crises that occurred in the past and reintroduce those messages and actions to overcome the current crisis. I think this is also an important role for intellectuals.

In your recent book “SNEP” you mentioned outreach as an important method to help the SNEPs. How should this outreach be done? And how is this different from educating the public, which is generally considered to be one of the activities of an intellectual? Is outreach something that would be effective against other forms of crisis such as the Great Tohoku Earthquake?

Outreach refers to an activity where somebody who has expert information reaches out to those who are in need of medical or welfare care or support but cannot access locations where they could receive such treatment. SNEPs are isolated from their society and have difficulties asking for support. Therefore, to keep them connected to their society, it is important that those who are willing to provide support reach out to them.

When we provide outreach, the most important element is to “not try too hard.” Even if our intention is to support them, people who are in difficult situations may fall into a deeper state of panic if there is a sudden outside intruder. As a result, they might lose their place of escape and begin to hurt

themselves or become aggressive against their family members who allowed such intrusion.

This is why we need to take our time and be careful when we conduct outreach. We need to let the outside intruders become part of their lives. I am not sure what it means to “educate” but outreach should not involve trying to force somebody to change or to force your thoughts upon them. That being said, when individuals are trying to take a step forward and to break out of their shells, we must have the tools to identify the opportune moment to stand by their side and to gently encourage them.

There are many who have found refuge in temporary housing, suffering from isolation at the earthquake site. Even those who live in places that did not directly suffer from the earthquake are also suffering from the shock of the disaster and refuse to return to their homes. They also require assistance through outreach.

What does an international and interdisciplinary community like Meridian 180 mean to you? What kind of possibilities does this project propose?

This interview is about the theme of “crisis” right now, but if I was only talking with economists in Japan, I would probably have never thought about this topic so deeply. I think Meridian 180's efforts to discuss universal truths by transcending regional and disciplinary differences make it a very valuable project.

By participating in Meridian 180, experts and intellectuals should be able to recognize the value of the tools they have and improve upon them as well. And this will become an important way of protecting not only themselves, but also their community from the various crises that may arise in the future.

Living in Japan, I feel that all the trust between the U.S., China, Korea, and other regions that our predecessors built is starting to fall apart in various ways. I hope that Meridian 180 will become a movement that will contribute to building a new relationship of trust among intellectuals in the Asia-Pacific region.

3. *Beyond Crisis*

You led a forum on “How to Bring an End to Crisis.” How do we bring an end to a crisis like the Great Tohoku Earthquake or to a long-term crisis like the NEET or SNEP? What does it mean to bring an end to a crisis?

As of January 2014, there are 2,640 people missing due to the Great Tohoku Earthquake. Until those who are missing return, their families and friends have no way of bringing an end to the crisis. Likewise, there is a possibility that our outreach efforts – however hard we may try – may not successfully help the NEETs and SNEPs. It is possible that even if we reach out to them, we cannot help them recover from their difficulties. In this sense, the fact is there is a possibility that we cannot bring an end to a long-term crisis.

This is not an issue that pertains only to SNEPs. The reasons *hikikomori* (those who are in reclusion in their homes all the time) have fallen into their current situation are diverse and entangled in an extremely complex way. In addition, just because we can find out why they have become a *hikikomori* or SNEP does not mean that we have the means to improve their situation. We cannot overturn the crisis that has already occurred in the past, however hard we may try.

That said, if these individuals can understand, in their own way, why they are trapped, then this understanding may open up possibilities for bringing an end to their crisis. Expert knowledge and experience, including outreach activities, might be useful in figuring out why they cannot overcome their difficulties. If we can find out even a little bit more about the reason behind their difficulties, then we might be able to take action, one step at a time – even if we cannot immediately overcome our crisis.

To bring an end to crisis, we must not avert our eyes from the current difficulties and sadness. We need to accept them in our own way as much as we can. Perhaps when we say, “bring an end to crisis,” it is not necessary to overcome crisis, but to find a way to continuously deal with crisis in an effective way.

Professor Genda, you initiated a new field of study called “Hope Studies” and have been researching about “hope” from various perspectives. Could you tell us more about your research on hope, and the relationship between “crisis” and “hope”?

Through my research on hope, I learned that crisis and hope have a very close relationship with each other. Through various surveys, I learned that those who have hope and are moving forward are always those who have experienced some major crisis in the past. They have the confidence that they have somehow overcome their past crises.

This is very different from “dream” which is something that we often juxtapose with hope. Like hope, dreams are also about your desired future. However, compared to hope, dreams tend to arise unconsciously, and are purer. For example, a child's dream might be to become a “soccer player.” There is no special impetus behind this child's dream (including a question of profit or loss). Of course, perhaps there is a part of him that wants to become rich or famous. But in the end, “he wants to become what he wants to become.”

In contrast, hope arises consciously. It was so after the Great Tohoku Earthquake, and the 1995 Kobe Earthquake. People at the site of the earthquake often talked about “hope.” During the 1950s when a lot of people got sick or died due to the Minamata Disease caused by mercury poisoning, those victims did not forget about the word “hope.” Those who experienced crisis and failure are more likely to consciously use the word “hope” when they begin to believe in the future and try to move forward.

In fact, we can plant the seed and nurture hope from the experiences and knowledge gained through overcoming crisis. Crisis, therefore, is the mother of hope.

I would like to ask about your research on Kamaishi City. You have been interested in Kamaishi even before the Tohoku Earthquake. The city was known to be the “hope of the local regions” during the 1960s and 1970s. However, as the steel industry declined, so did the city. Now the population of the city is half of what it used to be, and the economy does not seem to have the momentum it used to have. As such, the city is now symbolic of the “crisis of the local regions.” However, you

conducted your studies on hope in Kamaishi City, and found something beyond those crises in this city. Now that the city experienced a new crisis – the Tohoku Earthquake – what kind of suggestions or hope can we find from Kamaishi in terms of “how to overcome crisis?”

In 1857, Kamaishi was the first city in Japan to have a modern steel industry. Since then, Kamaishi experienced many crises that destroyed the city – it experienced two major tsunamis and a bombardment by American warships near the end of the Pacific War. Even after the war, when Japan was experiencing rapid economic growth, the decline in the steel industry caused the city to lose many jobs. So, the city has also experienced economic crisis.

The history of Kamaishi is a history of overcoming crises. In fact, Kamaishi's economy had recovered to an unprecedented level before the earthquake due to the growth of precision machinery and the food manufacturing industry in the city. Now that the city has experienced a new crisis, the earthquake, the people of Kamaishi are now working hard towards their new hope. Their efforts are not something that I can explain in a few words. I would like to introduce their efforts through Meridian 180 when there is an opportunity to do so.

As I conduct my research in Kamaishi, I found three criteria for revitalizing hope in regions facing crisis. They are 1) reconstructing their local identity (what makes them who they are, their strength), 2) having residents with diverse needs and skills continue to talk amongst themselves to share and spread hope, and 3) never letting go of the possibility of new innovation or collaboration by creating a diverse network both within and outside of the region.

Whether these criteria will serve as a suggestion for “overcoming crisis” in other regions is something that I would like to discuss with Meridian 180 members in the future.

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