Research Article

Human Insecurity Caused by the Dysfunction of the State: New Security Issues in Post-Fukushima Japan

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Controversial and insufficient post-accident measures implemented by the Japanese government after the Fukushima nuclear power plant accident in 2011 have caused prolonged anxieties over radiation. These anxieties resulted in multiple insecurities, including health, economic, food, environmental, community, personal, and political insecurities. The Fukushima disaster shows that threats to human security may come not only from the manifest "enemy" outside, but from "dysfunction of the state" supported by peoples' choices to sacrifice the victims for the sake of the interests of the "majority," which is called a "sacrificial system." At the same time, people are still patiently trying to restore their human security by means of voluntary actions.

Keywords   human security, nuclear power, Fukushima disaster, radiation, "sacrificial system," civil society movements

Introduction

After the triple disaster (earthquake, tsunami, and nuclear accident) struck Japan in March 2011, it was said that "human security comes home" to Japan (Bacon and Hobson 2014). Until then, human security had been a concern for *others*, mainly people living in developing nations who needed aid and support from Japanese aid agencies and related private sector organizations. However, overnight, the disaster brought an unprecedented threat to the human security of thousands of people living in Japan (Takasu 2014, 248-249).

Among the many specific insecurities experienced by the victims, the fear of radiation has been an ongoing threat to the people living in or evacuated from the areas contaminated by the disastrous accident at the Fukushima Daiichi Nuclear Power Plant, owned by Tokyo Electric Power Company (TEPCO). The successive nuclear meltdowns and the explosions caused by the ignition of hydrogen inside the reactors led to serious radiation leaks and prolonged contamination of the air,

soil, water, and ocean. The affected areas extend beyond Fukushima Prefecture to the surrounding areas of Tohoku and Kanto (Ministry of Environment 2014a). Despite the government-led decontamination programs—which as of April 2014 had cost about 1.9 trillion yen (about US$19 billion) (Ministry of Environment 2014b)—the air and soil radiation levels are still high in several areas, so residents are not allowed, nor are they willing, to go back to their homes. Also, the so-called risk communication policies adopted by both national and local governments toward the affected population have not succeeded in easing anxiety over radiation. Due to the uncertain risk of low-level radiation over a long period of time, there has been an exodus of residents not only from inside but also from outside the designated evacuation area. This is particularly true in the cases of families with children and pregnant women who are more vulnerable to radiation risks (National Diet of Japan 2012, Chapter 4, 74-75).

According to surveys of the affected population, evacuees from Fukushima have been isolated from their relatives and friends, and feel socially, economically, and psychologically trapped. The problems caused by the accident are also observed among those who stayed in or went back to Fukushima and the neighboring contaminated areas, as there is still anxiety over radiation and its health risks. Despite these difficulties that have affected many families, the assistance and protection measures offered by the national and local governments have not been effective enough to secure their daily lives. In contrast, the "reconstruction" of Fukushima and the surrounding affected areas is officially promoted alongside a "returning home policy" in order to avoid greater population outflow (Hamada et al. 2015; *Mainichi* 2015).

This article tries to analyze this ongoing crisis in the wake of the nuclear accident from the perspective of "human security" by identifying the causes of the insecurities afflicting the affected populations. At the same time, it will be shown that voluntary actions by residents to avoid radiation are crucial elements in restoring their human security. Since the disaster, citizens have learnt a bitter lesson that their rights and securities can be endangered not only by "foreign enemies" but by the policies of their own governments. The victims of "dysfunction of the state" usually reside in rural municipalities such as Fukushima, and it is the corporate managers and policy makers in metropolitan cities who decide where to build or whether to restart nuclear power plants, so that the sacrifices of the victims are often neglected or left unnoticed. The typical structural violence arising from this center-periphery structure, which is called a "sacrificial system," has become a major problem in post-Fukushima Japan.

Using a Human Security Framework in the Analysis of Post-Fukushima Japan

The United Nations Development Program (UNDP) conveyed the radical character of this new dimension of security in its 1994 *Human Development Report* when it noted that it noted that another "profound transition in thinking" was needed from nuclear security to human security (UNDP 1994, 22). At a time when the world was shifting its attention from the nuclear tension caused by Cold War rivalry to more complex and cross-cutting threats, the UNDP was trying to attract more attention and resources to the security of people. In the course of the development and implementation of this new concept, UN institutions and civil society organizations, as well as several individual member-states, paved the way for transforming the main ideas of the concept into actual policies (Black 2014; MacFarlane 2014). Canada and Norway have taken the lead in promoting human security, emphasizing a "protection-based" approach aimed at protecting civilians caught up in armed conflicts or genocide from physical violence (Axworthy et al. 2014, 144).

While this approach focuses on the threat of direct physical violence to people, other countries have paid attention to structural violence issues such as underdevelopment, which is closer to the original UNDP concept. Among them, the Japanese government vigorously promoted the concept of human security in connection with structural violence issues in the United Nations system by establishing the UN Trust Fund for Human Security in 1999 (Ministry of Foreign Affairs, Global Issues Cooperation Division, 2010, Section 2.3). At the same time, the idea of human security has been specified as one of the basic policies of Japan's official development assistance since 2003 and "people-centered" bilateral assistance has been promoted in various governmental sectors, including by the Japan International Cooperation Agency (JICA) (Kaji 2015; Takasu 2014; Ministry of Foreign Affairs 2014, 4-5). According to a report issued by the Japanese government, human security "aims to protect people from critical and pervasive threats to human lives, livelihoods and dignity, and to enhance human fulfillment" (Ministry of Foreign Affairs, Global Issues Cooperation Division, 2010, Section 1.1).

Ironically enough, when we think of the human security of those living in or evacuated from contaminated areas after the Fukushima disaster, it is obvious that the Japanese government, which has keenly promoted the concept of human security in its foreign policies, has not respected the idea in its response to the nuclear emergency or in its national reconstruction and energy policies. The government is now eager to encourage the evacuees to go home and has announced that the evacuation orders for the "relatively low" radiation areas are to be lifted by March 2017 (*Japan Times* 2015b). It was also announced that the

housing rent subsidies for those who left the non-evacuation areas, which are almost the only form of support they have received so far, will be ended by that date (*Japan Times* 2015c). Moreover, the government is now gradually restarting the more than forty offline nuclear reactors despite objections from the majority of respondents in several opinion polls (McCurry 2015).

In this post-Fukushima context, human security is a crucial concept that helps us to recognize the actual threats to people's daily lives (Maruyama 2015) and to widen the scope of imminent peace and security issues in a highly technological "risk society" (Beck 1992). For many centuries, only threats posed by external enemies were recognized as capable of endangering the peace of a state, so national security required massive military build-ups and weapons systems. However, threats to people's security can, and frequently do, arise from the national policies of their own governments, either intentionally or as the result of gross negligence. Theoretically, the state should protect the rights and property of its subjects. But in practice, the lives and wellbeing of the people are frequently put at risk because of "dysfunctions of the state," and this type of insecurity can occur even in a developed country with a high level of technology and multiple layers of democratic institutions.

This is due to the multiplicity of threats facing the people in relation to health, economic, food, environmental, personal, community, and political security (UNDP 1994, 24-25). As the nuclear accident posed a serious threat to security in all these areas simultaneously in an almost irremediable way, it has been quite difficult to find effective and necessary responses to it. Therefore, it is necessary to conduct research, not only in the areas of medicine and technology, but also in the humanities, social sciences, and other interdisciplinary areas, including peace studies, in relation to this complicated crisis which is recognized as a major threat to human security. Why has one of the most developed nations in the world failed to ease anxieties over radiation among the affected population? Which areas of human security does the Fukushima disaster relate to? How and by whom can the threats to human security be resolved? These are the main research questions which will be answered in the following sections.

Prolonged Anxieties over Radiation

The author has been a member of a project team supporting preschoolers and pregnant women affected by the nuclear accident,[1] and through surveys and interviews has found that the majority still feel insecure about the health and future of both their children and themselves. The first survey, conducted from August to October 2011, was aimed at clarifying the needs of families who had remained in non-evacuation areas of Fukushima Prefecture after the accident. The project team was able to collect responses from 238 families with the help of

a local NGO in Fukushima (79% response rate). The survey revealed that 92% of the families felt insecure about child-raising and 70% found evacuation from their current home in Fukushima difficult because they needed to stay on for their work. When they were thinking of evacuating from Fukushima, the biggest obstacle was financial difficulties (59%). Some wrote: "I feel helpless because I cannot protect my child" and "I feel unstable and insecure because the decisions on the evacuation are divided among family members" (FSP 2012a, 3-9).

The second survey was conducted in August 2013, targeting families evacuated from Fukushima Prefecture and living in neighboring Tochigi Prefecture. The questionnaires were answered by 107 families (10.5% response rate). The results showed that many evacuees from Fukushima had become isolated from relatives and friends who had stayed on in the non-evacuation areas of Fukushima Prefecture and felt socially, economically, and psychologically trapped. The following comment reflects the difficult situation faced by evacuees from outside the designated evacuation area: "My husband and I are divided as to whether we should to go back home or not. I fear that we may end up divorcing and I do not know what to do in the future. I wish I could share my worries with someone." (FSP 2014)

The other three surveys were carried out with the purpose of finding out the needs of families living in the contaminated areas of northern Tochigi Prefecture which borders the southwestern part of Fukushima Prefecture. Although northern Tochigi has experienced similar levels of radiation to Fukushima, neither the Japanese government nor TEPCO has provided the same quantity or quality of assistance to its residents. The first survey in Tochigi was conducted in July 2012. Among the 245 families with preschoolers who responded to the questionnaires (53% response rate), 94% felt insecure about child-raising, 85% were worried about the effects of radiation, 76% were worried about the safety of food and drinking water, and 48% were unhappy about their children playing outdoors. Concerning what response measures were necessary, 74% required regular testing of food and water safety; 68% required the early and effective decontamination of homes, roads, and public spaces where children could play; and 55% needed free and regular health-check services. The stress on families was frequently observed in comments such as, "too tired to keep worrying about the radiation," or "I feel anxious about whether my daughter will be able to have a healthy baby in the future" (FSP 2012b, 7, 8, 15-21).

The second survey in Tochigi was carried out from August to October 2013 on a much larger scale, with the purpose of comparing the results with the survey carried out the previous year. This time, 2,202 families answered the questionnaires (68% response rate). Even though more than two and a half years had passed since the accident at the time of the survey, 83.6% of respondents were still worried about the effects of external radiation exposure on their children's health while they were playing outside. In the same way, 85.3% were worried

about the effects of internal radiation caused by the contamination of food and water. As in the 2012 survey, the majority of them required government support in the form of free health checks and early and effective decontamination (FSP 2013).

The third survey in Tochigi was conducted in June 2014, and it targeted families with children who wished to take advantage of screening for thyroid cancer organized by a voluntary private fund, the Health Survey Support Fund for Children in the Kanto Area. Among the ninety-seven families who answered the questionnaire (96% response rate), 89% were worried about the health risks from radiation resulting from the accident, 87% wished to have an annual check, and 98% demanded that national and local government should take responsibility for the screening so that it could be offered to all children (Shimizu 2015).

Another survey, conducted by the town of Naraha in Fukushima Prefecture in January 2014, also indicated that many evacuees from Fukushima did not feel that it was safe to return to their hometown. The Japanese government announced in June 2015 that the evacuation order relating to Naraha would be lifted in July. This was the first of seven towns and villages which were ordered to be completely evacuated in the wake of the nuclear accident (*Guardian* 2015). Yet the results of the 2014 survey show that among 2,188 families (59.4% response rate), only 8% wanted to go home right away, 32.2% would only return when their conditions were met, 34.7% were undecided, and 24.2% said that they would not go back. Moreover, when we look at the results for those aged under 35, 48.5% answered that they would never go back home. The most popular reason given for this decision was "feeling uneasy about the safety of the nuclear power plant" (64.1%). Other answers relate to fear of radiation, including "feeling unsafe about the drinking water" (53.5%) and "feeling uneasy because the air radiation dose has not gone down enough" (48.7%) (Reconstruction Agency 2014, 1, 14, 24).

As is clearly shown in the results of these surveys, the human insecurity of the victims of the nuclear accident is an ongoing and serious issue that needs to be addressed by the Japanese government. In order to understand the reasons why these people are still anxious about radiation to this day, it is necessary to look back to the problematic response of the government after the accident.

The Nuclear Accident and the Government's Initial Response

There is no doubt that the ongoing concerns over the health risks associated with radiation were caused by the extraordinary seriousness of the meltdowns that occurred at TEPCO's Fukushima Daiichi Nuclear Power Plant. Because of the explosions and radiation leaks, significant amounts of radioactive material have been released into the air, the ground water, and the ocean, and these leaks are ongoing (Demetriou 2015). According to the Official Report of the

Fukushima Nuclear Accident Independent Investigation Commission, published in 2012, an estimated 900 peta-becquerels (Bq) of radiation were released into the atmosphere by the accident. In Fukushima Prefecture alone, about eighteen hundred square kilometers of land was left with a potential air dose rate of five millisieverts (mSv, the measure of the absorption of radiation by the human body) per year or more, one mSv per year being the official dose limit (National Diet of Japan 2012, Chapter 4, 2). As a result, the Japanese government raised the level of the disaster on the International Nuclear Event Scale from five to the maximum level of seven on April 12, 2011. This was the highest yet recorded and equal to that of the 1986 disaster at Chernobyl (IAEA 2011).

The main radioactive materials released were iodine-131 and cesium-134 and 137. Radioactive iodine-131, with a half-life of eight days, disappeared within a few weeks of the accident, although it does accumulate in the thyroid gland and children are known to be particularly at risk of developing cancer as a result (National Diet of Japan 2012, Chapter 4, 74). Cesium-134, with a half-life of two years, and cesium-137, with a half-life of thirty years, will be a health risk for far longer (Yasunari et al. 2011, 19530). One of the governmental agencies responsible for Japanese energy policies, the Agency for Natural Resources and Energy, admitted that the cesium-137 release alone was about 168 times that of the atomic bomb dropped on Hiroshima (Agency for Natural Resources and Energy 2012, 45; *Telegraph* 2011). Long-lasting particles of cesium-137 can circulate within an ecosystem for decades, taken up by the root systems of plants and returning to the earth when the plant dies. Moreover, radiation "hot spots" were found not only in Fukushima Prefecture, but also in adjacent prefectures, including Tochigi, Gunma, Ibaraki, Saitama, Tokyo, and Chiba (Ministry of Environment 2014a, Kinoshita et al. 2011, 19526-28).

In spite of the seriousness of the accident, the initial response of the Japanese government was criticized as being quite inadequate to protect residents from avoidable radiation. The government did not release much of the data on radiation spread forecasts to the public until March 23, 2011. These data were produced by the computer of the government's Nuclear Safety Technology Center, a US$300 million system comprising the Emergency Response Support System (ERSS) and the System for Prediction of Environmental Emergency Dose Information (SPEEDI). (National Diet of Japan 2012, Chapter 4, 55-66) These prediction systems were of vital importance at the time of the accident, as radioactive contamination did not spread in concentric circles. Rather, the actual spread was influenced by the weather, including the direction of the wind. However, without knowing where the wind had carried the radioactive materials, many residents moved away from the power plant to radiation hot spots predicted by SPEEDI. One evacuee from Minamisoma City in Fukushima Prefecture regretted the fact that his pregnant wife's exposure to radiation had been avoidable: My wife was in the initial stages of her pregnancy at that time. If

SPEEDI data had been disclosed sooner, our worry about health effects would have been lower. We moved from my home to my parents' house in Iitate Village, and then moved to Fukushima [City], where air dose rates of radiation were comparatively high. This is a great tragedy. (National Diet of Japan 2012, Chapter 4, 23-24)

Moreover, it took the government one month to decide on the scope of the evacuation zones and to recommend that residents evacuate from these highly contaminated areas. On March 15, right after the accident, residents within a radius of twenty to thirty kilometers of the power plant received shelter in place orders from the government, and voluntary evacuation was recommended on March 25. However, several areas outside the thirty-kilometer radius, including Iitate Village, the Yamakiya district of Kawamata Town, and the Tsushima district of Namie Town, received no orders until April 22, when these areas were also included in the designated evacuation area. It was apparent that the government had been made aware of the high level of radiation in these places by SPEEDI data by March 23 at the latest, but the residents were left unprotected for more than one month (ibid., 24-27). One resident explained how children in these areas were living their lives as usual without sufficient information or warnings:

> Since we lived in an area that was not declared a designated evacuation area until later, there was no evacuation order from the government at the time of the nuclear power plant accident. Therefore, my children and I walked around outside and were completely exposed to radioactive substances. I had made my youngest, at eighteen months old, carry on playing outside in tremendously high levels of radiation. Since the government had information about the dispersal of radioactivity from SPEEDI at an early stage after the accident, I wish that they had disclosed it. I don't understand how the government thinks. Life is important to us as well as to people in high-level positions you know. The preciousness of children is the same for citizens as for people in high-level positions. (ibid., 25)

There were multiple reasons why the government failed to make the necessary information available to the public and to designate evacuation areas much earlier. Major obstacles preventing the release of data on radiation dispersal are assumed to include miscommunication and lack of cooperation between related agencies. The government has insisted that Cabinet members, including the then prime minister, Naoto Kan, were not presented with data until around March 20. However, officials of the Ministry of Education, Culture, Sports, Science, and Technology; the Nuclear Safety Commission; and the Nuclear and Industrial Safety Agency presumed that the Cabinet had received the data without confirmation (ibid., 58-60).

After the SPEEDI data were made available to the Cabinet after March 23, it took one month to resolve within the government the contradictory opinions of the various relevant organizations and to discuss the criteria for determining the

scope of the evacuation area (ibid., 25-27). Consequently, the health and security of residents were put at serious risk during the first few weeks after the accident, and this was the cause of people's ongoing anxieties about their health. Besides, government officials admitted that they feared sharing detailed information on radiation dispersal might end up by "creating a panic" among the public (Onishi and Fackler 2011). This mistrust of the general public on the part of technocrats would be widely observed in the subsequent post-accident measures, and this caused a huge amount of controversy among the public.

Controversial Post-Accident Measures and Human Insecurities

One of the most highly contested issues in Japanese society during the post-accident period was the government's move to increase the radiation dose limit for the general public from 1mSv per year to 20mSv per year. The Japanese government has justified this new standard in the contaminated areas by referring to the 2007 Recommendations of the International Commission on Radiological Protection (ICRP). According to these recommendations, the post-accident phase is deemed to be the "existing exposure situation" which is differentiated from the usual "planned exposure situation" to which the 1mSv per year standard for the public is applied. In the "existing exposure situation," the ICRP recommends that an achievable standard should be selected in the lower part of the band which ranges from one to 20mSv per year (ICRP 2007).

It has been claimed that the health risk of low-level radiation (less than 100mSv per year) is not clear, so the 20mSv dose limit set by the government is reasonable when we take into consideration the size of the contaminated area. Some specialists even say that as "it is estimated that a cumulative dose of 100mSv will increase the probability of cancer by 0.5 percent. … an increase in cancer risk caused by exposure to a dose of less than 100mSv radiation is smaller than those caused by a second hand smoke or a lack of vegetable intake" (Kanazawa 2011). However, this 20mSv per year standard has been repeatedly criticized by other specialists. The most well-known criticism was made by Professor Toshiso Kosako, a former ICRP member and a specialist in radiation protection, who resigned from his post as advisor to Prime Minister Kan in April 2011 in protest against the application of the 20mSv standard for schools. In his judgment, 20mSv was too high for children and he said that he "cannot allow this as a scholar" (*CBC News* 2011; Fackler 2011). Also, a scientific team from the French NGO CRIIRAD (Commission de Recherche et d'Information Indépendantes sur la Radioactivité / Commission for Independent Research and Information about Radiation) issued preliminary comments in June 2011 which criticized the standard as too high:

ICRP is considering that there is no safe limit. The risk of dying from cancer in the long term is proportional to the dose and there is no pre-set threshold. For those people (children and adults) already exposed to high doses of radiation during the first days and weeks after the nuclear accidents of the Fukushima Daiichi, the additional dose for the following months should be set at a level below 1mSv (CRIIRAD 2011, 5).

In spite of these criticisms, the Japanese government has applied this 20mSv standard not only to schools in Fukushima and the surrounding areas but also in designating the evacuation areas. In March 2011, a designated evacuation area was declared within a twenty-kilometer radius of the power plant, and contaminated areas outside that radius were designated only when their radiation dose exceeded 20mSv per year. This meant that residents of contaminated areas with less than 20mSv but well over 1mSv per year had to decide whether to stay or to leave without sufficient official support (CRIIRAD 2011, 3).

The Japanese government is using this 20mSv standard to decide when to lift the evacuation orders. As has been shown in the previous section, younger evacuees are especially reluctant to go home on account of their fear of radiation. It is obvious that this 20mSv standard will do little to persuade them to return (*Asahi Shimbun* 2015a). One woman who had left a non-evacuation area in Fukushima Prefecture expressed her anxiety about the health risk associated with radiation during an interview with the author in October 2014. "Some experts say that there is only a small percentage increase in the probability of cancer, although as a parent, I always worry that my son will be the one out of thousands who is unlucky."

In order to ease the anxieties of the people, a free official health check has been offered to all residents of Fukushima. It was found that 103 children had been diagnosed with thyroid cancer by May 2015. How this number should be evaluated is contested among the experts, and the prefectural authorities and the national government consider that these cases are "unlikely" to be a direct result of the nuclear accident (Oiwa 2015). However, some are concerned that this number may be too high for this type of cancer which is rare among children (*ENE News* 2015). Some residents of Fukushima Prefecture are dubious about what the prefectural and national governments have said about the survey results, as it was reported in 2012 that the prefectural government had held a secret "preparatory meeting" with the members of the thyroid screening review committee in order to agree a consensus that "the occurrence of cancer is not related to the nuclear power plant accident" (*Mainichi* 2012).

To make matters worse, the surrounding areas, including Tochigi Prefecture, have not received sufficient support from the Japanese government in relation to decontamination and health surveys. TEPCO has been reluctant to pay for decontamination of the surrounding areas and has not paid any compensation

to residents (*Japan Times* 2015a; *Japan Times* 2015c). One resident of Tochigi expressed her concerns during a press conference in June 2015: "I let my child play in the garden without knowing radiation levels immediately after the accident. … Four years later, I still haven't received any explanation or apology from TEPCO and I'm only left with worries about the future and health of my child" (*Japan Times* 2015d).

As has been described, the limited and reluctant responses of both the government and TEPCO have created anxieties about the risk of radiation that remain unrelieved. It is apparent that these people's health security is at stake, but six other areas of human security, including economic, food, environmental, personal, community, and political security, have also been threatened to a significant degree. Regarding economic security, many evacuees lost their jobs and homes at the same time, and are unable to predict when or whether they will be able to go back to their pre-accident lives. Evacuees from the designated evacuation areas received compensation for their property and monthly consolation payments from TEPCO, but the amount of compensation is limited and the monthly consolation payments will cease when the evacuation order is lifted by the government. Some worry that if they choose not to go back home, they will not be able to avoid the same economic difficulties usually experienced by evacuees from non-designated evacuation areas. At the same time, residents still living in the affected areas face other kinds of economic difficulties, especially those in the primary sector, including agriculture, fisheries, and forestry. The Japanese government estimated that the total economic cost of the accident to the primary sector is about US$1,600 billion (Ministry of Agriculture, Forestry, and Fisheries 2013). The tourism industry has also suffered as the number of foreign visitors dropped sharply right after the accident and famous locations in the affected areas are avoided by tourists (Birmingham 2011).

Where food security is concerned, the local and national governments have tried to convince the public that low doses of radiation are safe by mobilizing experts, celebrities, and the mass media. The phrase "rumor-related damage" is regularly used by officials, experts, and the media to criticize the choices of consumers who want to avoid products made in the affected areas or of tourists who want to avoid travelling there. In addition, the Ministry of Agriculture, Forestry, and Fisheries (MAFF) launched a "let's support by eating!" campaign one month after the accident, and the minister of agriculture, forestry, and fisheries and the head of the Consumer Affairs Agency issued a joint statement in April 2011 promoting the consumption of products from the affected areas (Ministry of Agriculture, Forestry, and Fisheries 2011). However, three months later, it was found that beef contaminated with cesium was on the market and had been consumed in eight prefectures (*Bloomberg Business* 2011). The incident occurred as the central government was asking each prefectural government to formulate its own food inspection plan, meaning that the tests varied from

prefecture to prefecture. This situation was due to a lack of infrastructure as well as the reluctance of local governments to inflict damage on local industries. In April 2012, a new food product regulation based on 1mSv per year was set by the Ministry of Health, Labor, and Welfare, but it has been criticized for only considering the risk of internal exposure through food and not taking into account the external exposure dose or internal exposure dose due to inhalation (National Diet of Japan 2012, Chapter 4, 92-95). In this way, food security has also been put into question.

On the issue of environmental security, the 20mSv per year standard is still used in official decision making as described in the previous section. Accordingly, residents with children are especially concerned that their environmental security is at risk. Despite these anxieties over radiation, official "risk-communication" policies and "emotional mobilization," such as the "let's support by eating!" campaign or the slogan "solidarity" with the people, have been used to suppress the legitimate anxieties of residents (Hirakawa and Shirabe 2015). As a result, it is often difficult for people to discuss their concerns about radiation for fear of being accused of inciting anxiety among others or causing "rumor-related damage" to their neighbors. As one resident of Tochigi Prefecture confessed during an interview in 2013, "we can discuss our anxieties over influenza or particulate matter 2.5, but when it comes to fear of radiation, it suddenly becomes impossible to talk about it. It is a kind of taboo topic." This example shows how the politics of the evaluation of radiation interferes with people's daily lives. Evacuees from Fukushima Prefecture also complained of the difficulties they experience in discussing radiation, knowing that some of their relatives and friends have no choice but to stay in Fukushima and wishing to avoid aggravating their fears.

Consequently, both community and personal security have been put at risk in the four years since the accident in many of the affected areas. Now, many communities are divided between residents who have anxieties and those who want to ignore the issue. Disagreements among family members over choices and perceptions may even end up in separation or divorce (Haworth 2013). There is a psychological barrier between residents from the evacuation area who have received compensation and those who live outside the area and were excluded from compensation (*Asahi Shimbun* 2015b). Even though four years have passed since the accident, there are still more than one hundred thousand refugees from Fukushima, and the accumulated stress of the evacuation has caused some to commit suicide and damaged the health of others (*Japan Times* 2014; 2015e). It is obvious that both community and personal security have been under threat as a result of the accident and the related problems.

Finally, it should be remembered that political security in relation to nuclear power and post-accident measures is also in danger. This relates to more than the recent decision to restart the nuclear power plant in the face of opposition from the majority of the population. The Japanese government and TEPCO

have repeatedly failed to respond to the demands and needs of the affected population as well as to the recommendations contained in a report submitted to the UN Human Rights Council by the UN special rapporteur on the right to health in 2013 (Human Rights Council 2014). The unenthusiastic reaction of the government to demands made by voluntary civil society organizations after the accident is now one of the biggest obstacles preventing evacuees and those who reside in the contaminated areas from securing their livelihoods.

Civil Society's Pursuit of Human Security and the "Sacrificial System"

In view of the inadequate response to the accident by the national and local governments and TEPCO, desperate efforts have been made by various voluntary groups to protect the health and rights of their children and themselves in post-Fukushima Japan. The most notable change in Japanese civil society since the disaster has been that anti-nuclear demonstrations have become more frequent. Ordinary citizens, including younger people who have never before engaged in any kind of political activity, are now joining demonstrations casually and posting comments on social networking sites. Many of these younger participants have not been mobilized by labor unions or political parties but have decided to join the demonstrations independently (Ogawa 2013).

Groups of evacuee mothers have been organized in many prefectures to share their anxieties and to provide support for each other while living in unfamiliar places. Some of them engage in advocacy activities and have submitted petitions to local and national governments to communicate their needs (Freiner 2013). One group has published a booklet on radiation issues for the purpose of disseminating the information necessary to protect children (Fukushima on the Globe 2014). Residents of Tochigi Prefecture have also formed several groups that use volunteers to measure radiation levels. One of these groups, the ARI Becquerel Center, is located in the Asian Rural Institute (ARI) in Nasushiobara City. The ARI is a Christian training center for rural leaders that accepts students from all over the world. The institute opened the ARI Becquerel Center on January 10, 2012, with assistance from the National Christian Council in Japan Ecumenical Disaster Response Office (JEDRO). The center is equipped to measure radiation in foodstuffs and other substances.[2] The results of the measurements are posted on the homepage of another related voluntary group.[3]

In response to the lack of official health checks in the areas beyond Fukushima, residents of Ibaraki and Chiba prefectures established a private fund, the Health Check Support Fund for Children in the Kanto Area, to carry out thyroid screening, mainly for children, as these two prefectures also have severely contaminated hotspots. The fund was set up by members of the consumer cooperative in Ibaraki Prefecture (Jyōsō Seikyō), and it has raised money from

the public to buy ultrasound screening equipment. The screening project also recruited doctors who were specialists in thyroid-related disease. The project was launched in September 2013 and it offers thyroid screening in Ibaraki, Chiba, Tochigi, and Saitama prefectures. As of today, three thousand people, mainly children, have taken advantage of the service.[4]

Some established Japanese NGOs have also reacted to the threats to human security posed by the Fukushima disaster. For example, Human Rights Now played an essential role in raising disaster-related human rights issues with the UN Human Rights Council, and invited the UN special rapporteur on the right to health, Anand Grover, to Japan in 2012 (Human Rights Now 2012). After visiting Fukushima, the special rapporteur submitted his report (the Grover Report) to the council in May 2013. In this comprehensive document, Grover advised the Japanese government to set the radiation exposure threshold at 1mSv per year and to base its health-protection and evacuation policies on this threshold (Human Rights Council 2013, para. 78 a). At the same time, it was recommended that the affected communities be invited to participate in the formulation of the compensation and relief policy frameworks according to the Victims Protection Law (ibid., para. 81 a).

In spite of the fact that these recommendations were widely supported by the affected people, the Japanese government dismissed most of them and the implementation framework of the Victims Support Act was designed without any input from the public (Human Rights Now 2012). This problematic situation harks back to the world-famous outbreak of Minamata disease that started in the 1950s in Kumamoto Prefecture. In that case, the majority of the victims were local fishermen and their families who were afflicted by a serious neurological syndrome caused by mercury poisoning. Even though thousands of people suffered from incurable symptoms for years, neither the Chisso Corporation, whose chemical factory was responsible for releasing the methylmercury, nor the national/local governments responded to the widespread poisoning of residents quickly enough to prevent further cases of the disease. The victims had to fight in the courts and on the streets for nearly fifty years before they obtained an apology and compensation from the Chisso Corporation and the Japanese government (Smith and Smith 1975; George 2002; Yorifuji, Tsuda, and Harada 2013).

Remedial action and the prevention of further harm were delayed as the predecessor of the Chisso Cooperation had been at the center of Japan's rapid industrialization and modernization drive well before the war and it had become one of the largest chemical companies in Japan during the post-war period. When industrialization and rapid economic growth are regarded as national priorities, the human security of people living in affected areas is easily sacrificed for the benefit of the "majority." As a result, not only the health and lives of the victims but also the surrounding environment and community are often damaged irreparably. It is regrettable that the government's and TEPCO'S inaction and

reluctance to respond to the Fukushima disaster show a striking resemblance to what happened in the case of the Minamata disease outbreak (Sugiyama 2015).

Tetsuya Takahashi, a prominent Japanese philosophy professor, has described the nuclear power industry as a "sacrificial system" in which some people benefit at the expense of others' health, daily routine, property, dignity, hope, and even very existence (Takahashi 2014). In response to the expected criticism that in order to maintain communal existence in a nation-state or society it might be necessary for some people to take on undesirable tasks, he went on,

> In response to these questions, I argued as follows. Indeed, depending on how one defines "sacrifice," such systems may be ubiquitous. We humans, for example, consume vegetables and (non-human) animals, meaning that our existence is maintained on the basis of their "sacrifice." In this sense, humanity is part of a sacrificial system. What is at issue here, however, is sacrifice that entails serious human rights violations. Given the potential risk of severe accidents and the enforcement of labor conditions that inevitably expose workers to radiation, nuclear power plants threaten and violate fundamental human rights, such as the right to life and the right to the pursuit of happiness. (Takahashi 2014)

Although Japan suffered two nuclear attacks in 1945 and was affected by nuclear fallout from the United States' Castle Bravo thermonuclear device test on Bikini Atoll in 1954, the "peaceful use" of nuclear energy has been promoted by conservative politicians, technologists, and electric power companies as an indispensable source of energy generation for the country (Kim 2013). Moreover, some politicians, including the former prime minister, Yasuhiro Nakasone, who played a leading role in introducing nuclear energy to Japan, have recognized that the very existence of nuclear power plants constitutes a nuclear deterrent (Maruyama 2015, 113-114). Even after the 2011 disaster, the Japanese government has been determined to restart the country's nuclear power plants and is eagerly exporting plants to other Asian countries. While the "proactive pacifism" promoted by the Abe administration is aimed at changing Japan's pacifist constitution, it seems that the insecurities arising from restarting nuclear power plants in this earthquake-prone country have not been carefully considered (Takemoto 2015). The sacrifices of the victims have once again been neglected, and the benefits to the "majority" are being aggressively publicized.

This time, however, the public are not just consumers or investors who only pursue short-term economic benefits and interests. Criticism of the Abe administration has mounted in relation to the controversial security bills which will allow Japan to exercise the right to collective self-defense currently prohibited by its pacifist constitution. Thousands of citizens, including students, mothers with children, the middle-aged, and the old alike, have joined nationwide demonstrations against the bills and the Abe administration. These unprecedented demonstrations are judged to have been made possible because

the Fukushima disaster made people realize that their peace and security could be severely threatened by national policies and the "dysfunction of the state." Now, citizens are vividly aware that democracy in Japan is in danger. Those who have joined the antinuclear demonstrations have also participated in the movement against the security bills (Tsubasa 2015).

When the author joined a demonstration against the security bills in July 2015, one of the student leaders led the crowd in chanting the phrase "protect Okinawa from Shinzo Abe!" Okinawa has long been sacrificed to the Japan-U.S. alliance, as about 74% of the U.S military bases in Japan are located on these small islands. During the Cold War, people saw the sacrifice of Okinawa as "necessary" to maintain the alliance and to deter the Eastern Bloc. But upon witnessing the demise of democratic institutions in post-Fukushima Japan, citizens are beginning to realize that this "sacrificial system" damages not only the fundamental human rights of the directly affected victims, but also the wide-ranging human security of the "majority" and of future generations.

How effective these antigovernment movements will be in bringing about policy change remains to be seen, but it is obvious that the need to rebuild a damaged democracy and protect human security is now widely recognized among Japanese citizens. We are "witnessing a renaissance in civil society," as citizens "no longer passively accept information or directives from the state" but are "seeking new roles in local and national politics" (Aldrich 2013, 264). Responding to the public outcry, some prominent individuals in Japan, including former prime ministers, members of the National Diet, mayors, and governors, have expressed their opposition to the use of nuclear power (ibid., 261)

The concept of human security has been criticized for its non-emancipatory or interventionist nature (Bae 2015, 3-6). However, if we apply the "sacrificial system" idea to nuclear power, we can see that the threats to human security are not coming from a manifest "enemy" outside, but from "dysfunction of the state" supported by the choice of the people to sacrifice the victims in the interests of the "majority." Although it was intended to be used in relation to problems in developing nations, the concept of human security has been claimed as a universal concern since its birth, and it has a boomerang effect, in that it makes the developed nations reconsider whether their own citizens' human security meets the criteria which these nations apply to "others." At the same time, it is important to pass on the lessons of Fukushima to other parts of the world. On the occasion of the UN World Conference on Disaster Risk Reduction held in March 2015 in Sendai City, located in a neighboring prefecture to Fukushima, a group of NGOs published a booklet setting out the lessons that can be learnt from Fukushima (Fukushima Booklet Publication Committee 2015). As long as persistent citizen movements of this kind exist, and are prepared to reflect on their mistakes and responsibilities within the system of structural violence, there is still a chance that the present chaotic situation can be changed to produce a

more humane and peaceful future. The voluntary civil society movements that are playing a crucial role in protecting human security endangered by the nuclear accident in Japan are living proof of the possibility of change.

Conclusion

It is often the case that a disaster such as a nuclear accident is perceived as a medical or technological issue which does not have much connection with the social sciences. However, as we analyze the ongoing problems related to the nuclear accident from the perspective of the concept of human security, it becomes clear that most of the problems are sociopolitical issues which should be analyzed using an interdisciplinary approach. Peace research is one of the most useful tools for tackling these complicated security issues which have universal implications for the future of the world. If we apply peace research as a method when we analyze post-Fukushima Japan, it is undeniable that the "dysfunction of the state" presents the most serious threat to human security, even in a democratic society. Additionally, we should not overlook the fact that this dysfunction has been supported and acquiesced in by members of the public who believe that the victims must be sacrificed in the interests of the "majority." Unless this "sacrificial system" is critically analyzed and ways are found to overcome its deficiencies, it will be difficult to safeguard human security in cross-cutting areas and structural violence caused by the system will persist. In order to help the people on the ground who are tirelessly struggling to recover their human security, it is the social responsibility of academia to analyze this problematic system by mobilizing the human security framework to shed light on the damage done to people whose voices are not often heard.

Notes

1.   The project is called Support Infants, Children, and Pregnant Women of Fukushima (FSP). Project homepage (in Japanese): http://cmps.utsunomiya-u.ac.jp/fsp/proj1.html.
2.   Information from the website of the Asian Rural Institute. http://www.ari-edu.org/en/blog-events/%E3%83%99%E3%82%AF%E3%83%AC%E3%83%AB%E3%82%BB%E3%83%B3%E3%82%BF%E3%83%BC/ (accessed June 30, 2015).
3.   The Nasunogahara Residents' Association for Radiation Protection (NRARP). http://www.nrarp.net/index.php?%E3%83%99%E3%82%AF%E3%83%AC%E3%83%AB%E6%B8%AC%E5%AE%9A (accessed June, 2015).
4.   Information from the homepage of the fund (in Japanese). http://www.kantokodomo.info/torikumi.html (accessed June, 2015).

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