

“Moms with Radiation Brain”

Gendered Food Policing in the Name of Science

Kobayashi Akiko is a married working mother in her midthirties whose son was six years old when the Fukushima accident happened. She lived in Kanagawa Prefecture, south of Tokyo, which was 150 miles away from the troubled reactors and said to be safe according to the government. But the accident nonetheless made her very wary of radiation contamination, and she fled southward with her son immediately after she saw the news of the blast from the nuclear reactors. Because of work and school, among other reasons, it was not feasible for her to relocate permanently, so they came back home after a week. But nervous about her son's health, she decided to buy only food from the southern parts of Japan, avoiding anything from the northeast and eastern regions. She thought about joining a consumer cooperative famous for its strict food safety standards, but decided not to because she heard that they did not let their customers choose where their vegetables came from. Whenever she went grocery shopping, she looked at the details of each product's label to make sure it was not from the Tōhoku region. If a product's provenance was not clearly indicated on the label, she wouldn't buy it. While she had been an avid supporter of *chisan-chishō*, or local food movements, she started buying soy milk and other food products from Costco because they were from the United States, and she felt they were safer. She tried to avoid seafood from the affected areas too, but this was still a bit worrisome to her since she learned that the place of origin labeling for seafood products was quite ambiguous. She was not sure about her brown rice, either. Brown rice was said to be richer in nutrients but also

more likely to have a higher contamination level than polished rice. “It has all become confusing,” she said. “It is really stressful every day.”

Kobayashi-san was one of the many mothers who have tried their best to avoid contaminated food in the aftermath of the Fukushima accident. The government and nuclear experts failed to provide information about food contamination in a timely and comprehensive manner. In the void that was created by the inability and unwillingness of experts to provide clear guidelines, laypeople began to cobble together bits of information and devise their own strategies in a desperate search for ways to mitigate radiation threats.

It is not a coincidence that it is mothers’ stories that we have to narrate to understand the day-to-day struggles with food contamination threats. Domestic responsibilities are highly feminized, including daily preparation of food for one’s family. After the nuclear accident, mothers devised various strategies to address potential harm from radioactive fallout from the troubled nuclear reactors—they avoided food from the affected areas, changed where they shopped for their food, and tried to cook in a way that would reduce the contamination. They also tried to get hold of detectors to measure the actual contamination levels of their food.

Rather than being commended as dutifully exercising their maternal responsibilities, these mothers were harshly condemned as irrational, emotional, and shameful. Despite the centrality of food in typical understandings of proper motherhood, the mothers who tried to cook uncontaminated food were not praised for their actions. Instead, the notion of *fūhyōhigai* (harmful rumors) was invoked to construe these concerned mothers as dangerous fearmongers. A compound of *fūhyō* (rumors) and *higai* (damages), the term refers to damage from the decline in sales of products that were regarded as contaminated with radiation. The connotation is that consumer avoidance of food is baseless: “subjectively considering food or products as unsafe without any scientific basis” (Seikiya 2011, 86), according to one expert on *fūhyōhigai*. Sometimes a more pointed term, “radiation brain mom,” was used to deride these concerned mothers as hysterical and irrational. Avoiding foods from the affected areas, or even just expressing concerns about food safety, was understood less as maternal dedication to the health of one’s family than as a lack of rationality, patriotism, and sympathy for the affected areas.

Drawing on feminist science and technology studies, I situate this sanctioning of mothers in a wider history of women’s struggles related

to scientific uncertainty and how their actions to respond to it often face social disapproval. Embedded in widespread gender stereotypes and deploying the full affective force of shame and guilt, *fūhyōhigai* constituted a critical power of the regime of food policing that was convenient for the elites who wanted to maintain the façade of normality after the accident. Seen as irrational or even discriminatory and prejudiced, mothers faced not only uncertainty about invisible contamination, but also social sanctions against their efforts to make sense of it.

Contaminated Food

The Fukushima nuclear accident caused a significant release of radioactive materials, and within a week of the earthquake, reports of contaminated food started to appear. On March 19, the government announced that it had found contaminated food, and subsequently ordered the governors of four prefectures to suspend shipments of spinach and milk. The contamination was not limited to Fukushima. In the same week, spinach from Takahagi City (Ibaraki Prefecture, 80–120 km away from the plants) had 15,020 Bq/kg of iodine 131, and similarly high values were found in spinach from other parts of Ibaraki Prefecture. Social anxiety increased as the media began to report contamination (“More and More Food Found above Standards” 2011; “Twenty-Five out of Forty-Five Fukushima Vegetables above Radioactive Standards” 2011).

Discoveries of contamination continued through the year: By January 2012, 1,048 cases of contamination had been detected by prefectural governments out of 89,786 samples (Ministry of Health, Labor, and Welfare 2012), and more than eighty government orders had been issued to stop shipments of food based on the Special Measures on Nuclear Disaster Act (Radiation Council 2012).¹

But even this long list, many believed, was only partial, and there were several reasons for their suspicions. First, many people felt that the government was testing an insufficient number of samples. Only 16,829 tests were conducted in the first six months after the accident (Endo 2012, 84). In comparison, Belarus was reported to conduct 30,000 tests per day (Onuma 2013).

Furthermore, the government’s criteria of what was contaminated and what was not depended upon what it started calling provisional regulatory values (PRV). The Food Sanitation Act, which sets most of

Japan's food safety standards, did not have any standards for radiation. The government scrambled to come up with standards that would guide their disaster response, and adopted the values they found in a report by the Nuclear Safety Commission, which they called PRVs ("provisionary" because they were meant to be temporary until formal standards were set).² These PRVs were, for cesium, 300 Bq/kg for drinking water, milk, and other dairy products and 500 Bq/kg for other foods. Although the PRVs became the *de facto* government standards, their social credibility was tenuous from the beginning. Many citizens felt that they were too lax. While they were comparable to or stricter than standards in the United States and EU (table 1.1), critics pointed out that some of the standards were less strict than the WHO recommendations; for example, for tap water, the PRVs set 200 Bq/kg as the upper limit, while WHO's recommendation is 10 Bq/kg. Nonprofit organizations reported that some countries affected by Chernobyl had adopted even stricter standards, such as Ukraine's cesium 137 standard for drinking water of 2 Bq/L, and Belarus's of 10 Bq/L for drinking water and 100 Bq/L for dairy products (Foodwatch 2011). Some experts also called for stricter values; for instance, a professor of medicine, Nagayama Junya, at Kyusyu University proposed that cesium standards should be set at 20 Bq/kg for milk and other dairy products and 50 Bq/kg for vegetables ("Prof. Nagayama of Kyusyu University" 2012). That some foods consumed in large quantities by Japanese—fish and rice, for instance—did not have lower PRVs was also criticized.³ Nonetheless, until the official standards were adopted in April 2012, the government screened food according to the PRVs, possibly underplaying the extent of contamination.⁴

Like Kobayashi-san, many citizens became highly concerned about the possibility of contaminated food. A number of consumer surveys show that Kobayashi-san was not an anomaly in worrying about and changing her food purchasing patterns after the accident. For instance, a survey by the Federation of Consumer Cooperatives in July 2011 found a large percentage of consumers (42 percent) trying to avoid food from the affected areas (Seko 2012). Similarly, in a government consumer survey in 2013, more than 60 percent of respondents said they cared about the place of origin of the food they buy, and of that group, 41 percent attributed their concern to fears about radiation; 19 percent responded that they would hesitate to buy Fukushima produce; and 15 percent said

Table 1.1 Comparison of Food Radiation Standards (Bq/kg)

	Drinking water	Milk	Regular foods
Japan (provisional)	200	200	500
Japan (April 2012)	10	50	100
US	1,200	1,200	1,200
EU	1,000	1,000	1,250

Source: Reconstruction Agency. 2014. *Hōshasen risuku ni kansuru kisoteki jōhō* [Basic information on radiation]. http://www.reconstruction.go.jp/topics/main-cat1/sub-cat1-1/20140218_basic_information_all.pdf.

the same about produce from Fukushima, Miyagi, and Iwate Prefectures (Consumer Affairs Agency 2013).⁵

Consumers also changed not only what they bought but also where they bought it. Like Kobayashi-san, who decided to buy more imported foods at Costco and gave up on the idea of local food, many consumers in the northern and northeastern parts of Japan began to avoid buying locally, turning away from the food localism that had been popular before the accident (Kimura and Nishiyama 2008). Farmers' markets were hit particularly hard in these areas. For instance, one study of farmers' markets in Fukushima found that they experienced a significant decline in sales (Endo and Matsumoto 2012). Farmers' markets in Miyagi Prefecture similarly suffered from a decline in the number of customers and the volume of sales (Miyagi Prefecture Division of Agriculture, Forestry, and Fisheries 2012).

Consumer avoidance of foods from the affected areas had significant impacts on prices. While the decline in sales of foods from the affected areas can be partly attributed to the decrease in the overall prefectural population, the decline in demand was a national trend, not limited to the affected areas.⁶ For instance, Fukushima was famous for its peaches and sold them nationwide, but Fukushima peaches after the accident were priced 20 percent lower than the national average (Cabinet Office 2014a). From 2009 to 2012, the average price of Fukushima vegetables on the national wholesale market decreased by 18.7 percent, a much larger decline than the national average (0.2 percent) (Bank of Japan 2013). The price decline was not limited to Fukushima and impacted farmers in neighboring prefectures. Farmers in Miyagi Prefecture, for instance,

reported lower prices for their produce (Miyagi Prefecture Division of Agriculture, Forestry, and Fisheries 2012). Food producers from the eastern and northeastern prefectures suffered significantly from the damage to their products' reputations after the Fukushima accident.

Fūhyōhigai: Censoring Concerned Women

Fūhyōhigai became an overarching concept that was frequently used to describe the mechanism of the decline in popularity of foods from affected areas. After the accident, fūhyōhigai specifically referred to the sales declines from concerns related to radiation contamination. It became one of the major economic concerns of the government, as it was estimated to have caused tremendous economic damage—a government estimate put fūhyōhigai damages at \$13 billion in 2011 alone (Office of the Prime Minister 2011).

The concept of fūhyōhigai was useful to producers because it included a range of damages caused by the accident but otherwise not recognized. When food was found to be contaminated according to government standards and hence banned from sale by government orders, the producers could be compensated for the loss. But even when the food was not officially contaminated, consumer avoidance resulted in the loss of sales. This was the scenario in which the concept of fūhyōhigai was helpful to food producers because it allowed them to claim the reduction in sales as accident derived.

Besides this legal function, which was undoubtedly important and useful, the concept of fūhyōhigai had complex social functions as a mechanism of food policing. According to professor of communications Sekiya Naoya, the term was originally coined in the 1980s to characterize a decline in sales of seafood due to nuclear reactor accidents. Its use became commonplace to describe various cases of consumer avoidance, such as of beef after the bovine spongiform encephalopathy scandal and of spinach due to dioxin from incinerators (Sekiya 2003). Fūhyōhigai is a morally charged concept that redefines what might be simply described as changes in consumer preferences as regrettable misbehavior based on false rumors. In a context of scientific uncertainty, fūhyōhigai is a powerful tool to demarcate certain views as rumor while legitimizing others as fact. After the Fukushima accident, the concept was used to

describe people who avoided foods from affected areas as fearmongers who caused much suffering to the food producers.

Fūhyōhigai crystallizes the combined power of scientism, neoliberalism, and gender, the three social forces I discussed in the introduction. Fūhyōhigai privileges science as the arbiter of truth and presents it as uncontested and unambiguous, while addressing neoliberal concerns about economic vitality. Furthermore, as I describe below in detail, post-Fukushima fūhyōhigai particularly targeted women as dangerously irrational.

For the readers of this book outside of Japan, it might be difficult to imagine how widespread and harsh the fūhyōhigai discourse was against those who expressed concerns about radiation. A good illustration might be the case of *Oishinbo* and how it became a national scandal. *Oishinbo*, a comic series widely popular since the 1980s, centers on a gourmand's quest for delicacies. In April 2014, the comic had a story where the main protagonist and his father had nasal bleeding after coming back from Fukushima, which was attributed to radiation exposure. This story caused a huge national scandal that was framed as a problematic case of fūhyōhigai, making the comic a target of strong criticism from the media, the government, and scientists. Various government institutions, including the Ministry of Environment and the Fukushima prefectural government, went so far as to issue statements criticizing *Oishinbo*. High-ranking politicians such as the mayor of Fukushima City, the secretary of the Reconstruction Agency, and the governor of Fukushima Prefecture made media appearances criticizing the comic as fūhyōhigai ("*Oishinbo* Hyōgen Ni Zannen" 2014). A professor from Fukushima University was quoted in the comic as saying, "I do not think it is possible to decontaminate the large area of Fukushima so as to enable people to live there"; he was reprimanded by the university, whose president said he "should be aware of his position as a university professor" and "refrain from spreading fūhyōhigai" ("*Oishinbo* Hamonhirogaru" 2014).⁷ Joining the *Oishinbo*-bashing was Prime Minister Abe Shinzo, who, speaking of the comic, said, "the government needs to tackle baseless fūhyō[higai]" ("Abe Shushō Konkyo" 2014). In response, some people in the affected areas said that they did actually suffer from various health symptoms including nasal bleeding ("*Oishinbo* Hanadi Konkyoaru Senmonkara Hanronkaiken" 2014), but these rebuttals were brushed aside as simply

nonscientific anecdotes. There might have been little scientific proof that radiation at the Fukushima level would cause nasal bleeding, but the politically charged responses to the comic reflect the pervasive and harsh censoring of radiation concerns in the name of fūhyōhigai.

Fūhyōhigai criticism implicitly (and sometimes explicitly) targeted women. In general, women were found to be more concerned about food safety. For instance, a 2012 survey of consumers by the government showed that while radiation contamination was the biggest concern related to food safety for both men and women, 87.6 percent of women in comparison with 68.9 percent of men expressed this concern. Moreover, a higher percentage of women than men said they changed their food purchasing patterns (Food Safety Commission 2012).⁸ The stronger concerns of women about radiation contamination of food are related to a broader concern and wariness about nuclear energy historically found among more women than men. In Japan and other advanced capitalist societies, studies of people's attitudes toward radiation risks have usually found that women are more concerned about radiation contamination and its health impacts than men (Flynn, Slovic, and Mertz 1994; Watanuki 1987).⁹

Women were also seen as culpable, as they were the ones who shouldered most food-related tasks in households. While the professional culinary scene is dominated by men, domestic food tasks are done primarily by women in Japan (Holthus and Tanaka 2013). Shopping for ingredients and cooking food at home are mostly women's jobs in Japan, which makes their role highly visible in food-related scandals.

The explicit chiding of women as responsible for fūhyōhigai was often linked with their perceived weakness in technoscientific matters. For instance, Matsunaga Kazuki, the author of *Food Safety for Mothers*, was critical of the consumer reaction to radioactive contamination, which she said was unnecessary because the government had institutionalized "constant monitoring tests" that obtained "the result of non detectable (N.D.) in the vast majority of tests" (Matsunaga 2011a). In her portrayal, irrational consumer panic after the accident was caused by women who acted out of ignorance about food safety risks. As she wrote, "After the Fukushima No. 1 reactor accident, it was women, particularly mothers, who were concerned *and confused* about food contamination" (Matsunaga 2012, emphasis added). Matsunaga was not alone in criticizing mothers for acting irrationally. A professor of nutrition at Gunma University,

Takahashi Kuniko, criticized fūhyōhigai and linked it to what she described as an unfortunate “women’s propensity to food faddism” (Takahashi K. 2012).

Such sanctioning of women echoes through the history of women’s activism against contamination. As many feminist scholars have shown, information and data that are highly relevant to women’s lives tend to be understudied or withheld by male-dominated expert communities (Proctor and Schiebinger 2008; Tuana 2006; Schiebinger 2007). Yet far from simply remaining victims of such ignorance and uncertainty, women have worked to overcome it again and again. For instance, the women’s health movement has pressured the medical community to conduct more clinical studies specifically on women’s health issues in the United States (Morgen 2002). The women in Love Canal, near Buffalo, New York, collected data on childhood leukemia and other illnesses in their neighborhoods and found significantly high local rates of morbidity and mortality, successfully confronting the government authorities with their findings (Blum 2008). These women’s actions met harsh criticism for being irrational and unscientific. Women in Love Canal, for instance, were condemned for hampering the community’s economic development and lowering the prices of real estate by what many saw as an unfounded accusation of contamination (Gibbs and Levine 1982). Environmental activist women are commonly characterized as “hysterical housewives,” reflecting the “sexist policing” (Seager 1996, 279) of a patriarchal society that tries to keep them silent.

The sexist policing that took place after the Fukushima accident in the name of preventing fūhyōhigai was widespread, going beyond the statements issued by experts and government officials. On the Internet, particularly Twitter, people who were concerned about radiation were ridiculed as having a *hōsha-nō* (radiation brain), a pun on *hōshanō* (radiation) and *nō* (brain) (“Hōshanō Towa” 2011). A closely related term was explicit in its gendered connotation: *nō-mama* (radiation brain moms) were mothers with radiation brain. Reflecting a widespread understanding of maternal overreaction, mothers who raised concerns about radiation contamination were chastised as having a different kind of brain, one that was unscientific and unthinking.

Furthermore, the notion of fūhyōhigai encompassed a broad range of things, categorically describing them as baseless rumors about and discrimination against the affected areas. Prejudice against people from

Fukushima such as refusal to admit evacuees to schools and bullying was also described as *fūhyōhigai* (“Fukushimakarano Hinansha” 2012). Once it was categorically described as *fūhyōhigai*, mothers’ avoidance of food from contaminated areas became a similar kind of discriminatory action against people from the affected areas.

In the characterization of both food avoidance and acts of discrimination against individuals as instances of *fūhyōhigai*, the profound difference between them was obfuscated—without rigorous testing of food, there remained the possibility of actual contamination. Note that there were few means for women to make sure that they were avoiding contaminated food for months after the accident. Few places offered testing services for regular citizens. Citizens could bring food to private laboratories and testing institutions, but the cost of testing tended to be high, sometimes running over \$50 per sample, and it was impossible to test every item fed to a family. Access to testing facilities was an unmet need that resulted in a subsequent wave of citizen radiation-measuring organizations being established (see chapter 4). Except for rice from Fukushima, of which the entire harvest has been tested since fall 2011, only samples are tested by the government. That the lowest detectable level of the government tests tended to be high and that contamination levels varied widely even within the same district were sources of concern to many consumers. Furthermore, as the decontamination work continues to release radioactive cesium into the environment, scientific predictions of the movement of radioactive cesium were not warranted.¹⁰ But the broad brush strokes of *fūhyōhigai* painted consumer food avoidance as the same kind of prejudiced and disgraceful actions that kept refugee children from attending school.

Choice of food—including the decision to eat or not to eat food from the affected areas—could be considered an individual decision to be respected, but *fūhyōhigai* ascribed a sense of heroism and pride to the former (eating), and embarrassment and shame to the latter (not eating). Indeed, the particularly powerful function of *fūhyōhigai* discourse was to create feelings of guilt and shame. Women who avoided food from the affected areas were construed as causing pain and suffering to people in the affected areas. The *fūhyōhigai* discourse effectively deflected culpability away from the nuclear reactors’ operator, TEPCO, and the government and onto ordinary women. It framed the suffering of farmers and fishermen as caused more by consumer panic than by the nuclear accident itself.¹¹

The fūhyōhigai sanctions against mothers are highly contradictory, as the preparation of good food is usually integral to the Japanese understanding of proper motherhood. In Japan, food is entangled in an ideology of motherhood that demands cooking as a core requirement of being a good mother. Historically, motherhood was linked to the notion of nation building through the Meiji-era concept of *ryōsai kenbo* (good wife wise mother), which guided Japanese women to support the *ie* (household) as the critical unit of the empire of Japan. Today, the mother as a modern imperial subject has been replaced with the tender image of the *yasashii okāsan*, the gentle mother. The gentle mothers are no less subject to pressure to perform good mothering. The postwar economic boom created a new class of full-time stay-at-home wives (*shufu*) whose job was to be professional mothers. Their duties were to look after household chores while their husbands were largely absent from the home as corporate “worker bees” and to devote themselves to child rearing to prepare their children for the tough academic competition of a society built on a hierarchy of educational attainment (Holloway 2010; Borovoy 2005).

These gentle mothers who anchor Japanese familial life are also expected to provide good food. Mother’s food—or “mother’s taste” (*ofukuro no aji*)—is a symbol of good food, filled with the sense of affection and nostalgia. Since the 1990s, with growing concern over the rise in obesity and chronic diseases, mother’s food is increasingly featured as the foundation for a healthy and productive nation as well (Kimura 2011). In response to concerns about diet-related health problems and the deterioration of healthy dietary practices among Japanese, the government launched a *shokuiku* (food education) campaign in the first decade of the 2000s. In addition to health benefits, it emphasized the moral value of home-cooked meals, not only as an antidote to nutrition-poor fast-food and take-out meals, but also as a space of moral education and discipline for children (Alexy 2011; Kimura 2013a). Mothers then were expected to provide healthy and safe food for children in support of healthy families and nationhood, but their efforts to try to meet that ideal brought them condemnation after the nuclear accident.

Historically, Japanese culture tends to place a high value on loyalty and obedience as moral attributes in order to maintain the harmony of the larger collective (Lebra 1976; Nakane 1970). Going against the government’s safety pronouncements went against the value of obedience

to the government. Food avoidance by women, who are traditionally placed in a socially subordinate status, appeared an even bigger transgression that disrupted the government's postdisaster plan for "the rebirth of Japan," which was to be based on "mutual help and cooperation by all Japanese nationals" (Great East Japan Earthquake Reconstruction Headquarters 2011, 3).

As Kamiyama Michiko of Food Safety Citizens' Watch, a nonprofit group, wrote in a letter to the Food Safety Commission in 2013, when there were few ways for consumers to ensure the safety of food that they ate, "avoiding buying food is not *fūhyōhigai*, which is presumed to be baseless, but is a right of consumers" (Kamiyama 2013). But through a mechanism of "control by controlling emotions" (Papadopoulos, Stephenson, and Tsianos 2008), mothers were shamed and reprimanded for causing pain to producers and even to their own children, and at a high cost to national unity and the economy. Riding on a cultural coding of women as emotional and weak on scientific issues, the discourse of *fūhyōhigai* humiliated these women for being plagued with emotion and for engaging in shameful actions. The postaccident strategies of mothers could be seen as vigilant, dutiful, and caring, but the *fūhyōhigai* discourse instead painted a picture of these women as thoughtless, traitorous, and discriminatory.

Uncertainty in Science and Certainty in Government Pronouncements

Did these mothers deserve to be ridiculed as radiation brain moms who did not understand the science of radiation? Was their concern about food contamination overblown? I do not intend to evaluate epidemiological and medical studies on the health impacts of internal radiation from exposure through ingested or inhaled radioactive materials. Nonetheless, it is worth noting that the science on internal radiation is riddled with disagreement even among experts. The standards that the Japanese government used to delineate dangerous from safe, contaminated from clean, were dependent upon layers of assumptions, few of which were uncontroversial.

For instance, the most comprehensive and long-term data on radiation impacts are those on atomic bomb blast survivors from Hiroshima and Nagasaki. This data set is usually considered "the epidemiological

gold standard for assessing radiation health-effects in human beings” (Little et al. 2004). However, historian Takahashi Hiroko, who studies the development of radiation research in the United States and Japan, argues that the atomic bomb survivor data are seriously flawed, and historical and geopolitical issues need to be taken into consideration to evaluate them. The data are managed by a research institute in Hiroshima called Radiation Effects Research Foundation (RERF), which, although located in Japan, was established by the United States immediately after the end of World War II. Originally called the Atomic Bomb Casualty Commission (ABCC), it was created to study the impacts of the nuclear weapons used in Japan. Takahashi argues that the United States intended the ABCC/RERF to focus on external radiation, disregarding or actively stopping research on internal radiation. The US government, facing global criticism for its use of atomic bombs and also having to justify stationing its troops on Japanese soil, tried to depict the bombs as causing only immediate death by explosion but not long-term health impacts (Takahashi H. 2012, 59–64). The notion of internal radiation would contradict such a position. The United States insisted that the bombs were clean weapons, because they exploded at high altitude, diluting the effects of the fallout, and had no lingering effects after the explosion. Historian Susan Lindee similarly summarized the US attitude on internal radiation as follows: “The Americans did not include the estimates of internal radiation, that is, inhaled or ingested radioactive particles, in their calculations. Nor did they include estimates of exposure to residual radiation, even for those near the hypocenter who might have remained in the area for some time after the bombings” (2008, 28). The US position was incongruent with the notion of internal radiation that would have long-term impacts by accumulating within the body, which seems to have colored what kind of research has been done at RERF.

It has also been pointed out that RERF was shaped not only by the US intention to minimize the issue of long-term effects of radiation but also by the Japanese government’s desire to reduce the number of people who were eligible for victims’ health benefits. Even though nearly 300,000 people were granted Atomic Bomb Survivor’s Certificates, the government recognized only 2,000 of them as atomic bomb injury victims whose medical expenses would be covered by the government and who would be eligible for special health care allowances. The government’s ability to reject applications for the certificates depended on defining

what counted as radiation exposure as external radiation, as well as on acknowledging only a limited range of possible health consequences of exposure.¹²

These political pressures to treat only immediate explosion impacts as atomic bomb impacts have influenced ABCC/RERF's research, as Takahashi points out: "ABCC and RERF are not systematically conducting research on internal radiation. They cannot provide 'scientific standards' on internal radiation" (Takahashi H. 2012, 290–301). There is a dearth of studies on internal radiation's health effects, as RERF itself even admits. When Okubo Toshiteru, a council member of RERF, was asked after the Fukushima accident to be the radiation advisor for Koriyama City, Fukushima, he admitted that although RERF had been studying radiation's human impacts for more than sixty years, it did not have much data on internal radiation (Morita 2012b).¹³

In the case of the Chernobyl accident, studies on health effects from internal radiation remain ambiguous. International nuclear organizations such as the International Atomic Energy Agency (IAEA) and United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR) insisted that Chernobyl's effect was limited. For instance, UNSCEAR's assessment of the health impacts was that apart from the dramatic increase in thyroid cancer incidence among those exposed at a young age, and some indication of an increased leukemia and cataract incidence among the workers, there is no clearly demonstrated increase in the incidence of solid cancers or leukemia due to radiation in the exposed populations. Neither is there any proof of other nonmalignant disorders that are related to ionizing radiation (UNSCEAR 2012). These international nuclear agencies claimed that psychological effects were the most significant health impacts of the accident (Morris-Suzuki 2014b).

But some studies have shown how radionuclides accumulate in the human body (Hoshi et al. 2000), and there has been an observed increase in diseases such as leukemia (Noshchenko, Bondar, and Drozdova 2010) and other, noncancerous diseases such as cataracts (Sumner 2007) and heart disease (Trivedi and Hannan 2004). It has been difficult to establish causality between internal radiation from food and specific diseases, with the possible exception of cardiovascular diseases (Bاندازhevskaya et al. 2004).

In setting radiation-related standards, the Japanese government has relied upon the International Committee on Radiological Protection

(ICRP) recommendations, but their legitimacy is also highly contested. For instance, the food standard of 100 Bq/kg (for general foodstuffs) was derived from complex calculations that involve estimates of consumption volume of different categories of food, different sensitivities to exposure by age groups, and so on. Nevertheless, the Japanese government ultimately used the ICRP recommendations as the basis for radiation protection standards. Some organizations such as the European Commission of Radiological Risk criticized the ICRP's standards, arguing "that the ICRP risk coefficients are out of date and that use of these coefficients leads to radiation risks being significantly underestimated. . . . Employing the ICRP risk model to predict the health effects of radiation leads to errors which are at minimum ten fold while we are aware of studies relating to certain types of exposure that suggest that the error is even greater" (González 2012, 247). One of the points that critics raised was that the ICRP takes cancer as the biological endpoint in calculating radiation impacts, and insufficiently considers noncancer illnesses. Some studies have indicated that radiation exposure might not result in cancer deaths, but could result in cardiovascular, immune, and reproductive diseases. The ICRP does recognize the potential of noncancerous effects, but its risk coefficient does not include noncancerous impacts (see, for instance, Health Protection Agency 2009, 11).

Some also have argued that the ICRP ignores the qualitative differences between internal radiation and external radiation and that internal radiation should be considered more dangerous than external radiation, as the radioactive materials exist closer to human cells. Professor Sawada Shoji from Ryukyu University has particularly criticized the ICRP and the Japanese government for this reason. Another expert, Kodama Tatsuhiko, a medical doctor with expertise in radiation protection and a professor at the University of Tokyo, has similarly warned of the more localized and potentially stronger effects of internal radiation. In his testimony to the House of Representatives' Labor Committee on July 27, 2011, for instance, he said, "To say 'X mSv' in relation to internal radiation is meaningless. Iodine 131 accumulates in the thyroid, Thorotrast in the liver. Cesium accumulates in the urothelium and bladder" (Kodama 2011, 19). From this perspective, each radionuclide accumulates in a different part of the body and exerts differentiated and localized effects.¹⁴

Despite these disagreements within the scientific community, the Japanese government and international nuclear organizations portrayed

a monolithic view of radiation risk and marked it as the correct and only permissible interpretation. Such a position can be seen, for instance, in a public relations video released by the government in 2012. Titled “New Standards for Radioactive Materials in Food,” the video emphasized how the new standards included ample buffers and considered all age groups. Akashi Makoto of the National Institute of Radiological Sciences appeared on the show as an expert, confidently explaining, “In our daily lives, we are constantly consuming radioactive materials in our water and food. To be concerned about the intake of radioactive materials into your body is not scientifically correct” and “food below the standard [of 100 Bq/kg] is safe.” And he repeated the government mantra that “there is no confirmed evidence that a level below 100 mSv causes symptoms in our bodies” (Government of Japan 2012).

Another example of the government’s construction of the “correct view of radiation risk” can be seen in a newspaper advertisement placed by the government in August 2014 (Reconstruction Agency 2014). With the headline, “Have Correct Knowledge of Radiation,” the ad appeared in all the major national newspapers, including *Asahi*, *Yomiuri*, *Mainichi*, *Sankei*, *Nikkei*, and two regional papers in Fukushima (Takatori 2014). It featured two male doctors, one being Nakagawa Keiichi, a professor in the Department of Radiology and the director of the Department of Palliative Medicine at University of Tokyo. The gist of his message can be gleaned from subtitles such as “Serious Misunderstanding of Radiation Impacts” and “No Increase in Cancer in Fukushima Is Expected.” The ad tried to relativize the radiation risk (e.g., “having insufficient vegetables in the diet is riskier than 100–200 mSv exposure”) to make the point that people were worrying too much. In words that allow no hint of uncertainty but nonetheless betray the existence of different opinions about internal and external radiation within the scientific community, Nakagawa was quoted as saying, “Although people tend to think internal radiation is more serious than external radiation, gamma rays from cesium will penetrate the body and expose the whole body evenly, so there is no difference between external and internal [exposure].” The other expert featured in the advertisement was the director of the Human Health Division of IAEA, Rethy Chhem, who was quoted as stating, with no qualifying remarks, “Unless the exposure level is extremely high, we know that there is no health impact.” Again, this comment ignores the complex scientific debates on the matter. Such obfuscation of the lack

of sufficient studies and concomitant fundamental uncertainty about radiation's impact has been critical to food policing since the accident.

International nuclear organizations such as ICRP, IAEA, and UNSCEAR also played a role in legitimizing the government position and lending it scientific credibility after the accident. ICRP is one of the key international nuclear organizations and describes itself on its website as “an independent, international organisation” whose members “represent the leading scientists and policy makers in the field of radiological protection.” ICRP sets global benchmarks on various radiological protections. The goal of IAEA is to develop a code of practice to be incorporated into national regulations; UNSCEAR's role is gathering and interpreting data on health effects, articulating the foundations for radiation protection standards based on data from UNSCEAR and other national institutions (Hecht 2012, 186; Boudia 2007, 399). The expert members of these organizations tend to overlap significantly (Nakagawa 1991, 77–81), constituting a powerful scientific authority behind the global pronuclear regime. These organizations are part of what some observers call the international nuclear village (Japan Scientists' Association 2014).

The international nuclear village had a lot at stake in the perceptions of Fukushima. The director of IAEA, Amano Yukiya, admitted that “the Fukushima Daiichi nuclear accident damaged confidence in nuclear power,” and IAEA suggested that the growth of global nuclear power would slow down due to the accident (McDonald and Rogner 2011). The call to revisit pronuclear policies became stronger in many countries, and some, such as Italy and Germany, decided to phase out nuclear energy.

These international organizations echoed and legitimized the Japanese government's assessment that health effects from the Fukushima accident were minimal. For instance, UNSCEAR, while recognizing the possibility of more thyroid cancer among children, said there would not be an increase in other cancers or birth defects despite criticisms that its report relied on data provided by the Japanese government (see, for instance, Human Rights Now 2013).¹⁵ In addition, IAEA played a role in legitimating the Japanese government's policies. When the government tried to relax the contamination cutoff for evacuation from 1 mSv to 20 mSv/year, for instance, IAEA held a news conference essentially affirming the controversial government position (“IAEA Urges Japan to Give Public” 2013; Shirabe 2013).

While the contribution of low-dose, chronic internal radiation to mortality and morbidity may indeed turn out to be negligible, the scientific data are incomplete and contested even among the experts on the issue. The government's insistence on the certainty of the science around the health impacts of radiation exposure belies the reality of contradictory scientific findings and opinions. Sometimes, however, the lack of knowledge on internal radiation has surfaced. For instance, a member of the Food Safety Commission who headed the efforts to review the available relevant literature acknowledged that studies that focused on the effects of contaminated food were "close to nonexistent" (cited in Morita 2011) and that "impacts from low-level radiation exposure remain scientifically uncertain (given the limits of today's science)" (Yamazoe 2011, 1).¹⁶ But the overall discourse emphasized the safety of the current situation, relegating scientific complexity to the margins.

The government's denial of uncertainty and the promulgation of one kind of correct knowledge on radiation, however, might have worked to polarize the debate, as the politicized nature of the science of radiation became increasingly clear to many citizens. Citizens understood that the academic experts were an integral part of the so-called nuclear village, which has an entrenched interest in nuclear power. Historically, Japanese public universities—among them the most prestigious universities in the country—have been considered part of the government, their faculty members civil servants. Rotating on government committees and receiving research funding from the government, many mainstream nuclear experts were thought to be prime examples of *goyōgakusha* (government-patronized scholars) who, as handmaidens of the government, were unable to speak out against the government's positions (Sugiman 2014). Their insistence on the safety of the situation therefore only helped to fuel the concerns of the many citizens who were becoming increasingly aware of the possible capture of science by the state and the industry.

Privatized Struggles and Disaster Capitalism

One of my interviewees might be called a radiation brain mom. Inoue Mika is the mother of four children; they were residing in Fukushima Prefecture when the nuclear accident happened. She did not then have much knowledge about nuclear issues, and she had not given much

thought to the reactors in her prefecture before the accident. She worked for an insurance company and was busy raising her four children. On March 12, she went out to get rationed water due to the water shutdown and saw long lines in front of the gas stations, which made her realize that some people were trying to evacuate to get away from the reactors. She started paying closer attention to radiation threats. Initially skeptical of rumors about radiation, she started to doubt the government's pronouncements, particularly when it announced that it would allow 20 mSv at schools, rather than the 1 mSv standard allowed for regular citizens before the Fukushima accident. That the government could simply increase the standard—and for schoolchildren—outraged her: “I could not believe it—just like that!” Inoue-san said in the interview. At that moment, it was driven home to her that the government was not being forthcoming about what was going on and not prioritizing the health and safety of the people.

The city government's tests in summer 2011 showed that some parts of the city exceeded the level of 20 mSv per year. The results were worrisome but also showed wide variations in the contamination levels depending on locations even within the same city. Inoue-san wanted to know how bad her particular neighborhood was, and so she contacted the city office. But she could not get a solid answer to her question. She learned about citizens trying to measure radiation levels by themselves, and through them obtained a Geiger counter. When she used it, she found out that the levels both inside and outside of her house exceeded the level of the “radiation controlled area” which was the legally designated area that was off limits for regular citizens before the accident. She told me, “We were living in areas that would have been off limits except for radiation technicians before the accident.” She became more worried; she stopped buying local milk and started buying more food from outside Fukushima.

She did so quietly, not talking about her worries to her family or her friends. Her husband was away, doing business overseas, but she lived with her in-laws. They were highly critical of her worries, saying that if the government was saying it was okay, she should not be worried. She told me that she could not say much after once hearing such comments from them, as she was afraid to cause further tensions among family members. Even her children—particularly the oldest—said that she worried too much. Teachers and school administrators seemed to emphasize that the

impact of the accident was minimal, and everything was fine in her area. Therefore, her struggles to feed safe food to her family after the accident became a highly private, even hushed activity. Food policing worked, to use Inoue-san's own analogy, like the *jishuku* (self-imposed restraint) mood when Emperor Hirohito was dying in the late 1980s. At that time, people's awareness and fear of potential criticism for being disrespectful resulted in the voluntary cancellation or the postponement of sports and cultural events and the weddings of celebrities. Similarly, because everyone well knew the potential of being criticized for *fūhyōhigai*, many self-censored, policing their own behavior to act as if nothing had happened. Silence was not imposed by an iron fist of government, but rather wrapped around people like soft velvet, gently making women feel that they had to be silent.

Inoue developed a kind of strategy for finding others like herself who were similarly worried about contamination amid the façade of normality. "Most people lived as if nothing happened, so I did not want to bring it up in conversation, but sometimes I would guess, 'she is having her kids wear masks—so perhaps she is also worried,'" she said in the interview. In 2013, *Aera* magazine published a story featuring women with similar experiences, in which a woman was quoted as saying that she felt like an underground Christian during the Edo era, when they had to deny their faith by setting a foot (considered dirty) on an image of Jesus ("Marudekakurekirishitan?" 2013). To be revealed as a radiation brain mom was like being denounced as a heretic.

The Fukushima accident spawned a new market, with corporations offering solutions to mothers concerned about radiation contamination in food. When the fear of being criticized for *fūhyōhigai* forced many women to refrain from sharing their concerns and collectively mobilizing to demand better policies, comfort and relief often came from services and products that purportedly addressed safety concerns. Maternal distress was refashioned into the "consumer needs" on which astute corporations capitalize. The market for "becquerel-free food"—a term referring to food free of radiation contamination—was born.

As Naomi Klein (2005, 2007) observed in the US contexts of 9/11 and Hurricane Katrina, disasters often yield profitable opportunities for the private sector in a capitalist society. The triple disasters in Japan in 2011 similarly saw the private sector expanding its influence in the name of reconstruction and recovery. The economic damages of the disasters

were certainly enormous, but the reconstruction projects resulted in a significant economic boom for certain industries. Construction and nuclear industries captured billions of dollars spent by the government for the work of decontamination and reconstruction. While less obvious in comparison to the windfall enjoyed by these industries, the benefits to some in the food industry are noteworthy. Food became an arena in which astute corporations could turn disaster into profit and marketing advantages. Various kinds of businesses, from retail to restaurants, began to build unique niche markets founded on radiation concerns. Women struggling to respond to radiation threats in the context of food policing often, ironically, got a helping hand from corporations.

As feminist scholars have discussed, many women feel compelled to attempt the impossible task of being a perfect mother, and capitalism, as well as science, has often extended a helping hand to women struggling to fulfill this ideal. In capitalist systems, maternal anxiety creates a profitable market for certain services and products. For instance, worries about the quality and quantity of breast milk have resulted in tremendous growth in the formula industry worldwide (Apple 1996; Kimura 2008, 2013a). Parents are now a profitable target market in publishing, with a rich variety of manuals and self-help books on effective child rearing penned every year.

After the accident, the major supermarket chains initially struggled to cope with radiation contamination, but some of them quickly learned to use it as a marketing opportunity. One strategy was to adopt radiation standards stricter than the government ones, which were criticized as too lax by many consumers. The supermarket giant Aeon, with more than a thousand stores nationwide, decided to set its own “Aeon standards” in 2011. In defiance of the government’s standards, which were 500 Bq/kg (for general foodstuffs) at the time, Aeon said that they would not allow more than 50 Bq/kg for any product. Furthermore, in November 2011, the company announced that it would aim for “zero tolerance” and would publicize its own testing results on its website (Aeon Co. 2011). It is interesting that, despite the fanfare, Aeon did not screen all products. While all the beef it sold was tested following a discovery of contaminated beef in the summer of 2011, testing of other products was quite limited.¹⁷ Nonetheless, Aeon tested a broader range of products than its competitors, and this fact was widely reported in the media. For instance, another national supermarket chain, Itō-Yōkadō, only tested its

private brands of rice, vegetables, and fruits (Kanda, Nagai, and Shino-hara 2011).¹⁸ Radiation contamination provided Aeon an opportunity to establish an image of its supermarkets as stores with higher-quality food than competing supermarket chains.

The restaurant industry also responded to the nuclear accident. Places like Restaurant Non-Becquerel emerged, and some restaurants started offering special menus such as “becquerel-free lunch” and “becquerel-free kids’ menu.” The becquerel is the unit of measure for radioactivity, and “becquerel-free” food meant noncontaminated food. Some restaurants formed the Food Business Safety Network and promised to serve only becquerel-free food.¹⁹ These restaurants tended to be small, independent ones, but some major players also touted stricter radiation standards. For instance, the restaurant company Zensho, which owned Sukiya, a popular restaurant chain with more than 1,900 outlets nationwide, declared in 2011 that it would screen rice, beef, and vegetables regardless of their place of origin (Zensho Co. n.d.). This might have been a strategy to differentiate itself from its competitor Yoshinoya. The latter was famous for the same kind of beef rice bowls but admitted that it was not testing its ingredients even after the cesium beef scandal.

Various recipe books were published as well, including *Japanese Food Will Save You: The Key to Radioactive Detoxing Lies in Japanese Food* (Kirasienne Shuppan 2011), *Don’t Succumb to Radiation! Eighty-Eight Macrobiotic Recipes* (Okubo 2011), and *Detoxing Radiation: The Power of Japanese Food: Brown Rice, Miso and Seaweed Recipes* (Shufuno Tomo 2011). These books tended to build on the existing image of traditional Japanese food as health food, portraying, for instance, *miso* (fermented soybean paste), *umeboshi* (pickled plum), and *nattō* (fermented soybean) as counterradiation foods. The overall recommendations in these recipes usually echoed common ideas about healthy food in the contemporary Japanese context—traditional Japanese food centered around rice and vegetables with an added emphasis on fermented and seaweed products. These recipes for making becquerel-free and antiradiation food were rarely based on scientific evidence that would meet the criteria of experts, but nonetheless met the desperate need felt by many women to do something to manage the situation.

The accident also resulted in the proliferation of antiradiation products for sale. Various products were marketed as having detoxing effects. For instance, a type of nutrition supplement called Vitapecto (apple

pectin) was said to detoxify the body, and it sold for about \$30 for a seven-day supply. Supplements based on spirulina, a type of algae, were also said to have a good antiradiation effect, as were products with EMS, a type of microorganisms originally developed for organic farming but now used for different purposes, including drinks and food (Matsunaga 2011b).

Producers of some specific food items also claimed that their products had antiradiation power. As mentioned above, miso is a part of the traditional Japanese diet that became popular for having antiradiation efficacy. Miso manufacturers did not miss this opportunity to market their product's potency for combating internal radiation. A national manufacturer, Takeya Miso, touted the decontaminating properties of miso on its website, with a page titled "Thanks to Miso, Radiation Exposure Effect Was Mitigated" (Takeya Miso Co. n.d.). Another, smaller manufacturer, Ishii Miso, also used its website to cite experimental studies on miso's positive effects in relation to radiation. It even held a public seminar on miso's health efficacy, featuring a talk by a medical doctor titled "Radiation Protective and Anti-High Blood Pressure Properties of Miso" (Ishii Miso Co. n.d.). Despite criticism of these marketing campaigns for lacking good scientific evidence—for instance, their critics argued that they cited studies with methodological limitations and others that extrapolated from results found with animals to humans (Matsunaga 2011b)—the corporations continued to portray miso as a potent antiradiation food in their marketing efforts.

The profitable effects of such corporate opportunism might suggest that Japanese consumers were gullible and easily manipulated, but we have to situate such products' appeal to consumers in a broader landscape of Japanese corporate responses. Companies that offered safer products seemed like heroic mavericks in an environment in which the great majority of corporations leaned the opposite way—doing little to ascertain food safety and continuing to conduct business as usual. The unresponsiveness of corporations that danced to the government's tune fueled consumer concerns and made alternative products attractive in the eyes of many.

Many citizens suspected that the corporate inertia that kept companies from responding to contamination resulted in wide circulation of contaminated food on the market, and occasional media and NGO reports seemed to confirm their fears. For instance, nonprofit organizations

such as Greenpeace Japan repeatedly conducted random sampling of food products from supermarket shelves and reported that many of them were contaminated. In May 2013, for example, Greenpeace Japan found that fish sold at a national supermarket chain had cesium levels of around 5–7 Bq/kg. Of the thirteen times that they conducted this kind of testing of supermarket fish products, they failed to find contaminated food only once (Greenpeace Japan 2013). This is not to say that they exceeded the government standard for fish products (100 Bq/kg), which they were well below. But many consumers felt that food contamination was inevitable due to government and corporate inaction, and that safe food could only be ensured by specific efforts on the part of individuals.

Reports of deliberate deception by corporations also seemed to confirm consumer concerns about the food on the market. As the price of produce from affected areas became significantly lower, some corporations tried to profit from the situation by selling or using such food while masking its place of origin. For instance, journalist Azuma Hirokatsu reported in December 2011 that wholesalers were falsely labeling Fukushima rice as coming from elsewhere. He observed that used rice bags with non-Fukushima labels were being sold in Fukushima, presumably to package Fukushima rice and sell it as non-Fukushima rice. Furthermore, he pointed out that a complicated system of labeling and merchandising made it difficult to trace food origins clearly. He quoted a rice retailer as saying, “Fukushima rice can be labeled as ‘domestic rice’ just by mixing it with other rice, and if you mix Fukushima Koshihikari variety with Hitomebore variety, that makes it a ‘multivariety’ rice with no indication that it came from Fukushima. It then will go to the restaurant industry. And this rice can also be used for processed foods, such as sake, sweets, rice crackers, and rice flour bread” (Azuma 2011).

This situation of deception and inaction by many corporations inevitably made some consumers highly skeptical of the safety of the food generally available on the market. With government testing insufficient, and the food industry echoing the government rhetoric that food safety was under control, consumers were left to devise their own strategies, to which some corporations catered very well. It was this context that made the corporate provision of becquerel-free, detoxing food attractive to many consumers.

Yet another difficulty for consumers was that even safe products might not be what the corporations portrayed them to be. The claims that certain foods had antiradiation properties were rarely rooted in solid scientific studies. The claims of rigorous screening also sometimes turned out to be misleading. For instance, one of the mail-order vegetable companies touted the strictness of its radiation standards and testing. However, it was subsequently reported that the company tested its samples for less than twenty minutes, although the type of detector it was using would have required a much longer time to reach the level of precision it was advertising. The company had marketed a product line called Babies and Kids vegetable boxes, which it claimed were under 5–10 Bq/kg, and this was one of the reasons why its membership grew rapidly after the accident. Yet despite the proclaimed safety of its products, a significant doubt was raised that the company was doing what it said it was doing to ensure the safety of its food (Satō and Yamane 2012).

The Fukushima accident forced women to act as vigilantes to protect themselves, their children, and their other family members from harmful substances (Holdgrun and Holthus 2014). But necessary information was not forthcoming from the government or related scientific experts. The government data on food contamination came slowly and sporadically; the government standards for screening food were seen by many as too lax; and many affiliated scientists emphasized the safety of food. In the midst of confusing claims and counterclaims on the extent of food contamination and denial and assurances from government officials and pronuclear experts, desperate mothers had to devise various strategies to find safer food and ways to decontaminate; avoiding produce from particular areas, changing the retailers they used, and learning to change the way they cooked. This was done mostly without guidance from the government or scientific experts. There was little official instruction on what to eat, what not to eat, or how to cook after the nuclear accident. Rather, officials underplayed the risk and advised against mothers doing anything out of the ordinary.

The profound irony for consumers was that capitalism worked not only to offer possible solutions to the problem of contamination—if one hand of capitalism offered detoxing products and safe produce, the other hand compounded the problem by masking contamination and falsifying labels. Whether highlighting or underplaying radiation threats,

corporations turned out to be unstable and insufficiently trustworthy partners for concerned women. While both contamination and consumer concern about it could be profitable in the postdisaster capitalist economy, uncertainty only grew for consumers.

*Conclusion: Class Stratification of
Access to Becquerel-Free Food*

The way that becquerel-free food and detoxing food became commodified raises the question of class stratification of safe food after the nuclear disaster. The troubling impacts of commodification of food safety hit home when I read a long essay written by Nitta Ikuko, a single mother of three young children in Kawamata, Fukushima Prefecture (Nitta 2012). I found her essay in an obscure magazine called *Musubu* that gives regular citizens an opportunity for their voices to be heard on various social issues in Japan. Let me summarize her story here.

Immediately after the accident, Nitta fled Fukushima, evacuating to Wakayama Prefecture with her children. She went back to her home in Kawamata a month later to bring back some of her family's possessions. As she was a single mother with a meager wage, she could not afford to throw out many things, and the evacuation had already been costly. Among the things that she packed in her car was a bag of rice left in the kitchen.

Upon returning to Wakayama Prefecture, she started to use that rice, and she noticed horrible things happening. Strange health issues emerged—rashes, cracked skin, and stomachaches. Her throat felt like it was burning after eating the rice. She writes about her enormous regret: “I learned from a website that many people were experiencing similar symptoms. I had diarrhea, and my children were not doing well either—they had itchy eyes, runny noses, and stomach pains. For the first time it hit me that it might be because of internal radiation” (Nitta 2012, 27). She and her kids felt much better after throwing out the bag. Nitta blamed herself for maternal neglect; she writes, “I thought I was wise because we evacuated at an early stage in the crisis, but what a foolish mother I was. And there is no mending internal radiation. I cannot apologize enough to my children. I cannot regret enough. I told my children honestly and apologized. They were surprised but immediately told me, ‘Mother, it is okay. Don’t worry. We are fine.’ Their gentleness made me cry. Although

they accepted my apology, I cannot erase the fact that I exposed them to radiation” (27).

Government and scientific experts largely failed to offer practical advice such as telling mothers like Nitta not to eat the food left in the evacuation zone. And it was not until much later that they started offering voluntary evacuees like Nitta material and financial help, which might have eased the financial pressure that made that bag of rice seem worth saving.

That Nitta was a single mother is no coincidence, as the ability to be a good mother has always been highly class stratified. The basic understanding of a good mother in Japan has historically assumed a certain class status. While it may not be explicitly stated, ideal motherhood is clearly the province of full-time homemakers, the assumption being that they are married to a salaried man with a stable income, despite the contemporary reality that such women are increasingly rare due to the collapse of the lifetime employment system and corporate paternalism since the 1990s. In addition, the growing commodification of motherhood through various corporate services and products further segregates mothers who can afford to be “good” and those who cannot.

When the uncertainty of scientific knowledge on internal radiation was concealed and citizens’ concerns were chastised as foolish and dangerous, a helping hand for the inhabitants of the contaminated landscape came not from the government, TEPCO, or affiliated experts, but from private industry. There emerged an industry that catered to the unsatisfied maternal needs for *anshin* (peace of mind) about the quality of food. While their services and products were often appreciated by mothers, the privatization of food safety in this way has serious implications for equity and justice, as it further stratified access to safe food by socioeconomic status. Mothers of higher socioeconomic status could afford to buy mail-order food from unaffected places; to shop at stores that stocked exclusively non-Fukushima produce; and to eat out at the “safety network” restaurants that conducted vigorous radiation testing of their ingredients. The class stratification of access to good food is already widespread in the food system in general, not just access to becquerel-free food. High-quality food—such as organic, locally grown, fair-trade food—is often sold at a market premium at high-end grocery stores. The quest for safe and good food in the neoliberal economy tends to be refashioned into a “yuppie” pursuit of the wealthy (Guthman 2003).

It is in the patriarchal, scientized, and class-segregated structure of motherhood in Japan that Japanese women's struggles with contaminated food ought to be situated. Those without time and resources to spare had to live with lingering fear and the guilt of not being a good mother, and had to make an extra effort to try to provide safe food for their families and themselves.