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## Beyond reality – or – An illusory ideal: pro-nuclear Japan’s management of migratory flows in a nuclear catastrophe

Cécile Asanuma-Brice

Three years have passed since the earthquake and consequent tsunami of March 11, 2011, which led to the explosion of a nuclear power plant in Northeastern Japan. Since then, a central concern in managing the damage is how to handle the relocation of people displaced by the destruction of the earthquake-driven tsunami and the dangers of radiation. In December of that year, we wrote up a precise assessment of the damage caused to the housing sector, the system for rehousing victims of the tsunami, and also the nuclear contamination that has spread widely in part of the Fukushima region and neighboring districts.<sup>1</sup> The government reported the existence of 160,000 displaced persons, of whom 100,000 came from within the prefecture and 60,000 outside of it. Since the government adopted a policy favoring the return of the displaced to their home districts, which are still heavily contaminated, the official estimate today is 140,000 refugees: 100,000 within the prefecture and 40,000 outside it. However, these official figures are the fruit of an extremely restrictive registration system, to which a not insignificant number of inhabitants have refused to submit.<sup>2</sup> The displaced population is in fact appreciably greater than the official statistics would have us believe. What is the situation of nuclear refugees in Japan today? What local policies have been put in place to protect the inhabitants during these three years, as the government sought to manage a disaster of global proportions? What are the motivations of the authorities in seeking to compel the population to return to zones that are still partly contaminated, despite the ongoing risks and in the absence of any request to return? These are a few issues that I will seek to clarify in this paper.

### The stakes of the catastrophe



Temporary lodgings in Aizuwakamatsu, May 2013. Photo Cécile Asanuma-Brice

By “catastrophe”, I refer to what Jean-Jacques Delfour<sup>3</sup> has defined as “the normal effects of a series of real causes and the exposure of that series, that is, the negligence, minimizations, circumventions, and refusal to consider the risks created.” It is essential, when considering a government’s management of migratory flows and the choices it makes, to understand both the relevant domestic and international politics. Moreover, among the greatest paradoxes that have followed the catastrophe in question, is the multiplication of international agreements concerning nuclear energy between France and Japan (notably between Areva and Mitsubishi) for the construction of new nuclear plants and the operation of new uranium mines,<sup>4</sup> particularly in Asia. Additionally, though perhaps a coincidence, is the Mitsubishi Group’s first participation in Eurosatory, the world’s largest armament trade show, in June 2014.<sup>5</sup>

In a preparatory phase, the Ministerial Conference on Nuclear Safety was held in Fukushima in December 2012 by the IAEA

(International Atomic Energy Agency), bringing

together representatives of countries all over the world, where they resolved to develop nuclear plants that would henceforth be secure and without danger. In the same year as the Fukushima triple disaster, the political decision was made to pursue and develop nuclear energy, placing a premium on the quickest possible return to normalcy at the least cost. The tools devised by the International Commission on Radiological Protection (ICRP) for radioprotection, based on “concepts of collective doses and on cost-benefit analyses” are used as a foundation for calculating profitability in situations of risk. For the ICRP, the management of risk is guided by an equation, which assigns an economic value to human life, and from which the cost of protecting that life may be calculated, thus determining the cost-effectiveness of providing that protection.<sup>6</sup> As Jacques Lochard, a member of the Main Commission of the ICRP and director of CEPN (Centre d’étude sur l’Evaluation de la Protection dans le domaine Nucléaire), stated during an interview with the author in November 2013, “Ethos is never without Thanatos”.<sup>7</sup> The key is to know on which side one wants to tip the scale. Assigning a monetary value to human life certainly provides an extreme example of the tendency in our society toward the objectification of human beings, one fully consistent with the present Abe Shinzo government’s attempts to reopen Japan’s closed nuclear facilities.



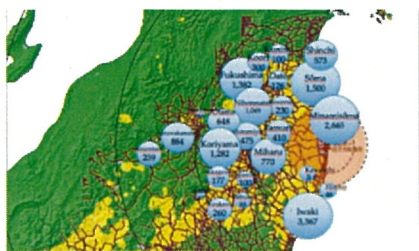
Temporary lodgings in Aizuwakamatsu, May 2013. Photo Cécile Asanuma-Brice

The politics of controlling population flows in post-3/11 Japan can be divided into three phases, in accordance with the directives formulated by the government in its annual priority plans.

### A Management policy to reverse migratory flows

The first stage was set in motion during the year following the catastrophe. The need to respond was urgent; this was primarily done by opening up the stock of vacant public housing throughout Japan and constructing new temporary barracks-like emergency housing, both made available free of charge, to take in the victims. While this measure constituted a form of emergency relief, within Fukushima Prefecture, attempts to reassure the population created rather an *illusion* of protection: temporary lodgings were built partly in contaminated areas, radiation measuring stations installed were tampered with, and decontamination efforts were largely ineffective.

### The distribution of emergency temporary housing vs. the distribution of radiation



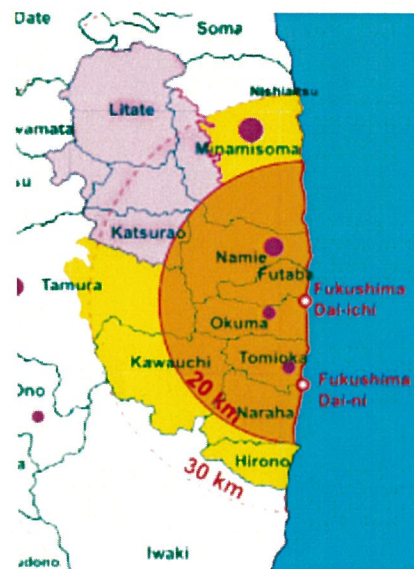
Measures at 1 meter in height  
 $0,20 \mu\text{Sv/h} \leq$   
 or  $1752 \mu\text{Sv/year}$  or  $1,7 \text{ mSv/year}$   
 $1 \text{ mSv (millisievert)} = 1000 \mu\text{Sv}$   
 Limit permitted for civil population exposure  
 to artificial radiation in France (and in Japan  
 before the explosion):  $1 \text{ mSv/year/person}$   
 (Code de la santé publique, Article R1333-8)  
**Map created by Cécile Asanuma-Brice**

The end of 2012 marked the first official call for the refugees to return home, coinciding with termination of the national program to provide vacant public housing throughout the country rent-free, but leaving the choice of requiring refugees to leave public housing in the hands of the authorities in local communities. This is one of the fundamental points characterizing official management of the disaster: the transfer of responsibility from the central to local governments, and frequently from local government to the victims. Shifting responsibility from the central government to local communities is the first step in this process. This translates into a considerable delay in reconstruction projects, since the generally impoverished local communities concerned lack the financial means and resources to manage these problems. In short, while not actually reconstructing anything, luring refugees home with the claim of a fictitious reconstruction guarantees reduction of costs to the center compared to the expense of actual reconstruction. Above all, the national authorities, who are working to resettle the inhabitants within the prefecture in order to better monitor them statistically and scientifically, are unwilling to invest in the protection of people they view as the damned and disposable. Why invest in public housing in a region that is already depopulated and destined to become even more so?

The second stage in state abandonment of its responsibilities to victims consists of transferring responsibility to individuals who have been forced to adapt their lives to a contaminated environment or are faced with choosing exile under conditions of extreme adversity. Specifically, the government offered no financial or material assistance to those who wished to seek refuge or rebuild their lives elsewhere.<sup>8</sup> An aggressive public relations campaign was devised to discourage exile or resettlement elsewhere by widely disseminating images depicting how onerous it is for Japanese to leave their local areas and ancestral homes. While leaving one's home is particularly traumatic for those who have farmed that land all their lives, this feeling is hardly limited to Japanese farm families. A number of people that we interviewed during our research expressed the desire to leave despite their attachment to the land, only to be confronted with the impossibility of this course in the absence of government financial support.<sup>9</sup>

### Reopening to better heal

The policy calling for the displaced to return home resulted in reopening part of the restricted zone at the end of May 2013. This policy of shrinking the restricted zone has significant financial implications for evacuees who are now eligible for less compensation from the Tokyo Electric Power Company (Tepco). So what may be good but undeserved PR for government decontamination efforts is bad news for people who now find their homes declared habitable when in fact that is a fiction since their homes are located in still contaminated ghost towns. In April 2011, the government established an evacuation zone of 20 km around the Fukushima Daiichi plant, comprising the city of Futaba and eight other localities. The entire perimeter was reorganized. The boundaries of the zone open for return following decontamination (避難指示解除準備区域) (meaning areas in which the contamination level was below 20 millisieverts), and the "difficult" return zone (帰還困難区域) (50 millisieverts) were revised to enable reopening of some areas (see map below). The special regulation zone, to which return had not been permitted, comprised of nine localities around the plant, was completely eliminated.<sup>10</sup> A total of 76,420 people were affected by these measures. Sixty-seven percent of them, or 51,360 people, were from the zone in "preparation for cancellation of the evacuation directive" (避難指示解除準備区域). They were permitted to move freely throughout the zone during the day to visit and work on their homes and land, but not to remain over night. The directive was partially cancelled effective August 2014. The restricted residence zone (居住制限区域), which concerns 25% of inhabitants (19,230 people), allows for free entrance and exit from the zone during the day, but without authorization to work there. The possibility to return to work during the day affects 42% of the population, or 32,130 people. Nonetheless, situations vary within each locality. Supermarkets, medical centers, and other services cannot be reopened, meaning that these reopened areas remain uninhabitable for practical reasons. Nevertheless, part of the towns of Okuma and Futaba have been used as decontamination test zones, with a view toward opening the zone in preparation for cancellation of the evacuation directive.



**For 2011 Map (left): orange represents the evacuation zone; pink, the voluntary evacuation zone; yellow a preparation zone for evacuation in case of emergency. April 1, 2011<sup>11</sup>**

### Subdued by the illusion of protection: Let's be resilient!

The second phase of the migration control policy was marked by the attempt to mobilize conceptual tools, principally that of resilience. The title of the 2012 white paper of the Japanese Ministry of Education revealed this intention: "Toward a robust and resilient society". Research budgets were oriented toward the study and implementation of this concept in a variety of fields. In the sciences, the notion of resiliency is used in materials physics to describe the elasticity of a body and its ability to return to its original form after suffering a shock. Emmy Werner introduced this idea in psychology, via the identification of factors that could help certain children to overcome trauma. Boris Cyrulnick spread this concept in France.<sup>12</sup> Cindynics, the science of risk management, uses this idea today as a way to frame models that might allow cities to better resist dangers. Recognizing their vulnerability to hazards, cities must adopt a resilient character in order to handle the many risks that confront them, whether



For 2014 Map (right): pink is the "difficult return zone" (more than 50 millisieverts/year), yellow is the limited residence area (20 to 50 msv/y), green is the "preparation for cancellation of the evacuation directive" area (below 20 msv/y). June 2014<sup>11</sup>

were illustrated by a slide presenting a simple equation: a scale is shown with, on one side, a heavy circle representing resilience and, on the other, a light circle representing catastrophe. In this schema, the heavier the resilience, the lighter the effects of the catastrophe. When I asked what that meant to him in concrete terms, he answered uncomfortably that three days earlier a magnitude-4 earthquake had negated these concepts: "for us, now, it's about enlarging the roads, so that people can flee and the blockages of 2011 don't reoccur in the case of a new catastrophe, [which should be considered] since we are relocating them at the foot of a nuclear plant that is still unstable." The need to reduce the present, and growing, distance between science and conscience could not find a clearer example.

**From resilience to the communication of risk**

The third stage of controlling population flows involves risk communication. Each year is another step towards an ever greater abstraction. The State has never stopped calling for refugees to return home, citing the psychological suffering caused by their separation from their native land and downplaying the physical and hereditary risk of radiation.<sup>15</sup> According to experts at Fukushima Medical University and at the IAEA, who gathered on November 24, 2013 for an international conference, the psychological disorders observed, notably among inhabitants of the temporary housing estates or residents of zones "perceived" as contaminated, stem from, among other things, over protection. Professor Hirofumi Mashiko, a neuropsychiatrist in the medical department of Fukushima University, explains that the need to wear a facemask, the various restrictions on using playgrounds and pools and on the consumption of food, etc., are stress factors and could be at the root of psychological disorders, especially among people who may be predisposed to mental illness. At no time did he mention the possibility that such depression might stem from the inability to leave the contaminated zones.

In order to get the message out to those most concerned and to regain the trust of the citizenry, a communication strategy was adopted supported by a budget target for 2014 of more than two million euros.<sup>16</sup> This aggressive policy aims to reassure the public by teaching it that the health risks of radiation are minimal while psychological risks are severe, particularly through the organization of workshops on radiation and cancer designed for primary school classes in Fukushima Prefecture<sup>17</sup> and by distributing manuals on managing life in a contaminated environment.<sup>18</sup> A strategy of indoctrination, in the literal sense, has been in place from this point on, affirming the absolute necessity to accept the doctrine.

natural, man-made or a combination of the two.<sup>13</sup> In the present case, all the tools have been mobilized and a subtle mix of approaches to resilience--psychological, ecological, urban, and many others--developed, so as to counter peoples' natural instinct for self-preservation. Extolling resilience is also a strategy for shifting responsibility for recovery from the national government to this region of hardscrabble people who have a history of overcoming adversity, turning their virtue into an excuse for the government to do as little as possible. No wonder that locals bristle at the endless praise for their culture of gamanzuyoi (perseverance). Yet, when speaking of resilience in the case of nuclear catastrophe, one should nevertheless recognize that fear, as an engine of human behavior, can sometimes play a salutary role.

Relying on urban resilience as a tool for managing catastrophe is problematic. The disconnect between territory and the "producers of urban space" is increased because the individual is absent from analyses that treat the city as an object, but also as a *subject*--i.e., a living, autonomous being, which one must either support or attempt to care for, without considering that it is just a thing, a simple product constructed by humans. The essential problem that this creates is, again, irresponsibility<sup>14</sup> regarding the consequences of human activity on the environment. This leads to the nullification of the individual as an actor in the production and management of space, as a person living *in* these areas, and de facto destroys the interaction between a place to live, its setting, its inhabitants, its producers, and its administrators (with the last three categories possibly overlapping).

An expert at Fukushima University in charge of protection against catastrophes, interviewed in June 2014, spoke of the great resilience of the Japanese during earthquakes. His remarks



The town of Tomioka in the zone of limited residence, October 25, 2013. Radiation level at 3 µSv/h.

**Government anxiety over a resurgence of deaths**

There were more than 1,170 deaths (関連死) related to the explosion at the TEPCO Fukushima Daiichi nuclear plant as of September 11, 2014.<sup>20</sup> This includes deaths among those who fled the explosion and contamination, and emergency workers at Daiichi. The first to be touched by this phenomenon were the elderly relocated to "temporary" housing; their health has gradually deteriorated as time has passed. Because the Japanese government did not accord the right to refuge to people located in contaminated areas, despite the recommendations made in 2012 by Anand Grover, the UN Special Rapporteur for human rights,<sup>21</sup> no financial support is available for nuclear refugees seeking to relocate. Those who can, leave at their own expense. "Those" refers to people who are not in the officially designated evacuation areas described above who decide to take refuge. They are considered "voluntary refugees" and thus the Government provides no financial assistance. The descent into a spiral of pauperization often leads to depression and alcoholism, and, in extreme cases, suicide. If



**Upbeat publicity poster for a March 29, 2014 event at a Fukushima primary school<sup>19</sup>:**

*Kids cancer seminar*

*Because you live in Fukushima there is a necessity for education about cancer!*

published in February 2014 designated the low risk to health of an environment with 100 msv/year as that of a low-dose environment.<sup>25</sup> Professor Tsuda Toshihide of Okayama University, who specializes in epidemiology, publicly contested point by point a study by the Fukushima Medical University, which he found erroneous; to support his case, he cited the 2013 WHO (World Health Organization) report,<sup>26</sup> which clearly warns of an increase, both at present and still to come, in the number of cancer cases in Fukushima; conversely, he criticizes the position of the Japanese government's denial of the health risks below 100 msv, noting that it is a position that few foreign epidemiologists would support.<sup>27</sup> Epidemiologist Keith Baverstock, a docent at the University of Eastern Finland and former member of the WHO, criticized the results presented in the 2013 report by UNSCEAR (United Nations Scientific Committee on the Effects of Atomic Radiation); in an open letter to UNSCEAR, he pointed out that the report did not come out until three years after the study it was based upon due to disagreements between members of the commission. One of these members, Dr. Wolfgang Weiss, particularly opposed publication of this document, as it rejected a connection between an increase in cancer incidence and the plumes of radiation released by the explosions at Fukushima Daiichi. However, the report does not deny the fact that the effects of the accident are in no way over, since, as TEPCO acknowledges in statements in May 2014, large quantities of radiation are still escaping from the plant, both into the air and into the Pacific Ocean.<sup>28</sup>

**A remedy for migration: communication**

In the face of quarrels among experts, there have been efforts by others from the same organizations (WHO, IAEA, ICRP) to 'rebrand' the issues through aggressive marketing of reassuring messages. This was the case during the two days of the 3<sup>rd</sup> International Expert Symposium in Fukushima, organized by the Sasakawa Foundation and the Fukushima Medical University on September 8-9, 2014. Its title explicitly heralded a desire to transcend the epidemiological disputes to reach the promising heights of resilience and reconstruction: "Beyond Radiation and Health Risk – Toward Resilience and Recovery".

For Abel Julio Gonzales, Academician at the Argentine Academies of Environmental Sciences and of the Sea, as well as a member of UNSCEAR and of the IAEA Commission on Safety Standards, everything is a question of communication. After having repeated many times that protection has a price and that the migration of some of the population should not be a goal, he asserted that residents' fears are due primarily to the term "contamination", which, given its association with pathology, has saddled irradiation with a purely negative image, despite the fact that we also receive radiation from the sun. This idea was picked up by Emilie Van Deveter (WHO), who proposed organizing a workshop on radiation exposure, including that from the sun, so as to teach primary school students basic knowledge of the subject. "In any event," she concludes, "we must win the cost-benefit challenge." In order to do so, and to manage the anxieties of the affected population, Jacques Lochard of the ICRP has taken on the task of creating a sense of security, in particular "by persuading the inhabitants to accept this new element that will from now on be a part of their everyday life: contamination." Everyone is agreed that there is not sufficient data to evaluate the internal contamination of the populace, but be that as it may, this does not seem to be at the heart of their concerns. According to Lochard, it is not a matter of establishing a threshold, but rather of restoring people's confidence by disrupting the recourse to flight--which comes from archetypes like Chernobyl--through individual measures, and thus allowing for self-determination over life in a contaminated environment." To do so, he has adopted the methods proposed by Ishay Ostfeld of the Israeli Ministry of Health, at the second symposium organized by Fukushima Medical University and the IAEA on November 21-24, 2013. Mr. Ostfeld explained that "the Israeli experience in responding to conventional terror demonstrates significantly more psychological than physical trauma victims... thus this experience may also serve in the field of radiation terror."<sup>29</sup> He therefore suggested the use of techniques developed in Israel during war to achieve resilience, such as the organization of small groups of committed residents, spread throughout the affected territory, who would take charge of reassuring the neighboring populace. This work has been undertaken in Fukushima by the ICRP, through workshops and seminars in concert with Ethos Fukushima, the 9<sup>th</sup> edition of which was held in August 2014.

we focus on the distribution of Fukushima nuclear disaster related deaths by locality, the towns of Namie (333 deaths), Tomioka (250 deaths), Futaba (113 deaths), and Ōkuma (106 deaths), which are adjacent to the plant--where leakage of contaminated water is still not under control--together account for 802 deaths identified as resulting from nuclear disaster; fifty-five these occurred within the six months from January to June 2014, indicating that the crisis persists despite government propaganda that it is under control. The newspaper *Fukushima Minpō* sounded the alarm in an article on June 21, 2014<sup>22</sup> reporting the remarks of the Minister of Internal Affairs and communications on the rising number of suicides.

**Increased incidence of thyroid cancer, or the battle of the experts**

The proliferation of the number of cases of thyroid cancer must also be taken into account in assessing the health consequences of the nuclear accident. According to results made public on August 24, 2014 by the Fukushima Prefecture board of inquiry, 104 of 300,000 children under age eighteen were diagnosed as having thyroid cancer.<sup>23</sup> The Japan Association of Clinical Regents (JACRI-日本臨床検査医協会), estimates that the natural rate of thyroid cancer in Japan is 1-3 persons per million. Epidemiologists, both in Japan and internationally, have challenged the insistence of experts on the Fukushima Prefecture Commission that these cases are not linked to the nuclear disaster. The Commission claims that the rise in the number of cases of thyroid cancer for the last three years is attributable to the "screening" effect, i.e., the comprehensive testing of Fukushima children and advances made in radiological testing which now allow for a much more precise detection of cancer. At the same time, it prevents any meaningful comparison with earlier test results. Keeping to the strategy of providing moral comfort to the populace--with an eye, not only to reopening the evacuation zone so as to rehouse the population as quickly as possible, but also to the scheduled restart of two nuclear plants in September-October 2014--the Minister of the Environment stated in a report made public on August 17, 2014, that below the level of 100 msv/year, there would be no apparent consequences on human health.<sup>24</sup> A previous government report

Continuing with the war analogy, the Battle of Fukushima is thus not about using the public policy tools of post-disaster social protection to provide help for displaced people, but requires diverting these resources to serve the political agenda of normalizing the consequences of this nuclear disaster to facilitate nuclear reactor restarts. This is in no way a government conspiracy, they insist. Rather, it is a plan for managing migratory flows of people in the face of a nuclear disaster, in this instance one in which a state (Japan) has opted to maintain its nuclear industry. One can nonetheless wonder if the experts, despite firmly held assumptions about the unlimited possibilities for manipulating public opinion, should not reconsider their position, given the macabre implications.

**Cécile Asanuma-Brice**, an urban sociologist, is an associate researcher at Clersé–University of Lille 1 and at the research center of the Maison Franco-Japonaise in Tokyo. A permanent resident of Japan since 2001, she is the author of numerous journal and newspaper articles on the handling of the Fukushima nuclear disaster, including: (2014 forthcoming) "De la vulnérabilité à la résilience, réflexions sur la protection en cas de désastre extrême: *Le cas de la gestion des conséquences de l'explosion d'une centrale nucléaire à Fukushima*," Revue Raison Publique, "Au-delà du risque Care, capacités et résistance en situation de désastre," co-dir° Sandra Laugier, Solange Chavel, Marie Gaille; (Sept. 2014) *Mobilisations, controverse et recueil des données à Fukushima*, La Lettre de l'INSHS, CNRS; (March, 2013) *Fukushima, une démocratie en souffrance*, Revue Outre terre-Revue Française de géopolitique; (June 2012) *Les politiques publiques du logement face à la catastrophe du 11 mars*, in C. Lévy, T. Ribault, numéro spécial de la revue *EBISU* n°47 de la Maison Franco-Japonaise, *Catastrophe du 11 mars 2011, désastre de Fukushima – Fractures et émergences*.

Newspaper articles include (2014) «*La légende Fukushima*», Libération, septembre, and (2013) «*Crime d'Etat à Fukushima: «L'unique solution est la fuite»*», Le Nouvel Observateur-Rue 89, juillet, with T. Ribault.

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#### Notes

<sup>1</sup> C. ASANUMA-BRICE (2011): *Logement social au Japon: Un bilan après la crise du 11 mars 2011*, Revue Urbanisme, Nov.

<sup>2</sup> C. ASANUMA-BRICE et T. RIBAUT (2012): *Quelle protection humaine en situation de vulnérabilité totale? - Logement et migration intérieure dans le désastre de Fukushima* - Report within the program *Nucléaire, risque et société* of the Interdisciplinarity Project of the CNRS.

<sup>3</sup> J.-J. Delfour (2014): *La condition nucléaire, réflexions sur la situation atomique de l'humanité*, Paris, éditions L'échappée.

<sup>4</sup> Among others: *Le Monde* (02/05/2013): «Le Duo Mitsubishi-Areva va construire quatre réacteurs nucléaires en Turquie»; *Le Parisien* (26/10/2013): "Nucléaire: accord de partenariat entre Areva, Mon-Atom et Mitsubishi".

<sup>5</sup> *Le Monde* (16/06/2014): «Le Japon revient dans la course aux ventes d'armes».

<sup>6</sup> F. Romario (1994): *Energie, économie, environnement: Le cas de l'électricité en Europe entre passé, présent et futur*, ed. Librairie DROZ, Genève.

<sup>7</sup> Interview conducted with T. Ribault in Fukushima in November 2013. Lochar was referring here to the ETHOS project established by the CEPN in Chernobyl in 1986 and Fukushima in 2012, with the aim of providing the population living in contaminated areas with knowledge of radioactivity protection, so as to shift responsibility for their protection from the state and/or TEPCO to local people. We may call this the self-management of its protection.

<sup>8</sup> The [Fukushima court ordered TEPCO to pay compensation of 49,000,000 JPY](#).

<sup>9</sup> C. ASANUMA-BRICE (2013) *Fukushima, une démocratie en souffrance*, Revue Outre terre-Revue Française de géopolitique, Mars.

<sup>10</sup> Yomiuri, 9 mai 2013: "Announcement on May 7, 2013 by the nuclear disaster countermeasures headquarters [joint measures council for nuclear disaster] (原子力災害対策本部) of the elimination of the previously off-limits special surveillance zone starting on the 28<sup>th</sup> of this month.»

<sup>11</sup> Fukushima Minpō, 23 juin 2014: *10 years after the accident, the government takes stock, with measures established following the decontamination of the difficult return zone, at less than 20 msv 事故後10年まで20ミリシーベルト未満 帰還困難区域除染後の線量 国が試算*

<sup>12</sup> Emmy E. Werner et Ruth S. Smith (1989), *Vulnerable but Invincible: A Longitudinal Study of Resilient Children and Youth*, Broché; Boris Cyrulnick (1999), *Un merveilleux malheur*, éd. Odile Jacob (2011), *Resilience: How your inner strength can set you free from the past*, Tarcher.

<sup>13</sup> G. DJAMENT-TRAN, M. REGHEZZA-ZITT (2012): *Résilience urbaines Les villes face aux catastrophes*, ed. Le Manuscrit.

<sup>14</sup> This irresponsibility is a product of cutting the link between the different actors of the city's production and practice that is necessary for effective responsibility. Cf. J.TRONTO «The term responsibility (...) refers to the idea of a «response», that is to say to a clearly rational attitude.» (p.103), in Carol Gilligan, Arlie Hochschild, Joan TRONTO (2013): *Contre l'indifférence des privilégiés*, éd. Payot.

<sup>15</sup> Fukushima Minpō, Oct. 10, 2013: *Rise in suicide rates due to the prolonged period of exile - in the (Fukushima) prefecture, and in the three devastated prefectures*.

"The Minister of Internal Affairs has recognized a tendency towards a greater number of suicides in the prefecture due to the accident at the Daiichi nuclear plant and the disaster in Eastern Japan. As of the end of August of this year, the figure rose to 15 people; through all of last year, the tally was 13 people, while the number of suicides had already reached 10 two years ago. With five times as many suicides as in the prefecture of Iwate, Fukushima prefecture has the greatest number of the three devastated prefectures. Specialists point to the psychological burden presented by the length of their refuge far from home. It is to be feared that this tendency [to commit suicide] to increase will accelerate; emergency measures are becoming necessary."

<sup>16</sup> 平成26年度 原子力関係経費既算要求額、第34回原子力委員会資料第6号。

<sup>17</sup> The 52nd Annual Meeting of Japan Society of Clinical Oncology: *Kids cancer seminar- Because you live in Fukushima there is a necessity for education about cancer!*

<sup>18</sup> NHK, June 10, 2014, a manual teaching how «to live with radioactivity»「放射能と暮らす」ガイド is henceforth being distributed in local communities.

<sup>19</sup> [The 52nd Annual Meeting of Japan Society of Clinical Oncology](#)

<sup>20</sup>「原発関連死、1100人超す 福島、半年で70人増 (the number of nuclear-related deaths surpasses 1100 people, with an increase of 70 people in six months) Tōkyō Shinbun, Sept. 11, 2014.

<sup>21</sup> Report of the Special Rapporteur on the right of everyone to the enjoyment of the highest attainable standard of physical and mental health, Anand Grover, ONU, Mission to Japan (15- 26 November 2012).

<sup>22</sup>「関連死で自殺歯止めかからず 福島県内 (suicides tied to the accident continue unabated inside Fukushima Prefecture), Fukushima Minpō, 21 juin 2014.

<sup>23</sup>「甲状腺がん、疑い含め104人 福島の子供30万人調査」(Thyroid cancer, 104 personnes, enquête sur 300 000 enfants de Fukushima), Asahi, 24 août 2014.

<sup>24</sup> 2014年8月17日「放射線についての正しい知識を。」という政府広報が、朝日新聞、毎日新聞、読売新聞、産経新聞、日経新聞の大手5紙と、福島民報と福島民友の地方紙2紙に掲載された。(Report made public on August 17, 2014 under the title "[For an exact understanding of radiation](#)" in five national papers: Asahi, Mainichi, Yomiuri, Sankei, Nikkei; and two local ones: Fukushima Minpō et Fukushima Minyū.) The report was also carried by the government's internet-TV channel. See Dr. Keiichi Nakagawa (Associate Professor, Tokyo University Hospital)

<sup>25</sup> [Basic reconstruction information.](#)

<sup>26</sup> WHO, *Health Risk Assessment*, 2013.

<sup>27</sup> 津田敏秀、「100msvをめぐって繰り返される誤解を招く表現」、科学、岩波、2014年5月、pp.534-530. TSUDA Toshihide, «Around 100 msv, declarations that multiply the misunderstandings » Science Review, Iwanami, May 2014, pp. 534-540.

<sup>28</sup> Keith Baverstock, «[2013 UNSCEAR Report on Fukushima: a critical appraisal](#)», August 24, 2014.

<sup>29</sup> Conference Program, International Academic Conference: *Radiation, Health, and Society: Post – Fukushima Implications for Health Professional Education*, 21-24 Nov. 2013, p.79.

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