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Fukushima One Year On: Nuclear workers and citizens at risk

An interview with Paul Jobin

Paul Jobin began research on Japanese (and Taiwanese) nuclear plant workers in 2002, mainly at Fukushima Daiichi. After March 2011, he conducted further interviews in Fukushima and Hamaoka and joined rounds of negotiation launched by labor groups with the Ministry of Health and Labor.

Could you summarize the policies towards radiation protection in Fukushima, and what characterizes the current situation, one year after the nuclear disaster?

Even before the disaster, TEPCO (Tokyo Electric Power Company) employed a large pool of workers in order not to exceed the annual quota of radiation per person. The latest statistics from TEPCO (dated November 30, 2011) reported 3,745 workers on the site in March (about 1700 TEPCO employees and 2,000 subcontractors), and 14,000 for the time from April to October. The overwhelming majority of the latter, more than 12,400, were subcontractors. These figures, already substantial, might not take into account level 5 to 8 subcontractors who perform the tasks that are the most directly exposed to ionizing radiation.

Level 1 refers to TEPCO employees and level 2 to those employed by the reactor manufacturers, Hitachi, Toshiba, and GE. These are the "upper crust", executives and technicians who enjoy high salaries and good social security benefits. Beneath them, levels 3 and 4, are composed primarily of employees of Small and Medium Enterprises (SMEs) specialized in nuclear power. These are the most highly skilled workers (plumbers, heating engineers, electricians, etc.). Many of the SMEs are local, but their employees include a large number of "gypsies" who go from plant to plant in search of work. Levels 5 to 8 form a very opaque world, with recruitment methods that range from hiring by temporary agencies to yakuza. The result is that half of the workers undergo little or no health and radiation checks. We can say that there is systematic camouflage of the collective radiation of the most exposed front line workers.

Since March 11th 2011, TEPCO has employed many people in an effort to bring under control the remnants of Fukushima Daiichi. The company seeks to stabilize the dangerous situation of the reactors and the pools which contain radioactive fuel rods requiring constant cooling. To this end, many temporary workers have been employed for short periods collecting debris from the explosions that occurred during the first week of the disaster. With 3,000 workers per day on average, large numbers of workers have spent at least one day on the Fukushima Daiichi site. Most of the workers have been on site three or more days, and since June many have been on site for an average of over one month. In the absence of a report by TEPCO or the Japanese government on the numbers of workers at Fukushima Daiichi, we estimate that around 30,000 workers have been exposed to significant levels of radiation, some for a few days, many for more than one month. And there will be many more as the cleanup continues in the years ahead. Because, contrary to what Prime Minister Noda said on December 16, the reactors are far from "cold shut down".

At what level does radiation become dangerous?

This question not only concerns nuclear workers; it stirs controversy throughout Japan and globally. Since the 1990s, the consensus of the international community of physicians and epidemiologists specializing in radiation is that there is no threshold of a non-hazardous level. That is, even low levels of radiation increase the risk of cancer. This is notably the position of the International Commission on Radiological Protection (ICRP), which is more or less independent from the nuclear lobby. Their latest recommendations (2007) advocate a limit on exposure of 20 millisieverts (mSv) per year for workers and a rate of 1 mSv for the rest of the population. Until 1990, these standards were 50 mSv and 5 mSv; they have been continuously revised downward since the creation of the Commission in 1928.
In fact, the debate has been greatly distorted since World War II, starting with the American "Atoms for Peace" program of 1953 that promoted nuclear power globally and in Japan sought to sweeten the pill of the atomic bombings of Hiroshima and Nagasaki by clearly distinguishing the ravages of nuclear weapons from the benefits of nuclear power.[1] The result is that, for sixty years, nuclear industry-subsidized pseudo-scientific research has greatly simplified the health consequences of exposure to ionizing radiation.[2]

A hot spot in the suburbs of Fukushima city, August 2011: the dosimeter records 6.25 microsieverts per hour (54.75 mSv a year). (Photo: Paul Jobin)

Thus the epidemiologists who advise the Japanese Prime Minister hold that below 100 mSv per year, there is no proven risk of radiation. In Fukushima Prefecture, including the urban areas where many children still reside, the rates range from 10 to over 80 mSv annually, levels which, in the long-term, pose a severe threat particularly to the health of children and young adults. One expert, a special advisor to the cabinet on radiation, Tokyo University radiation specialist Prof. Kosako Toshisō, resigned in April 2011 refusing to go along with the recommendation of his colleagues which insisted on the safety of 20 mSv for Fukushima children.[3] Most of these industry specialists base their conclusions on studies that were conducted on survivors of Hiroshima and Nagasaki, and they claim that below 100 mSv, there is a negligible abnormal high death rate from cancer, and that more generally, there are no 'stochastic' effects, i.e. observable consequences which would require assigning a certain probability of risk to a given population.
At the same time, nuclear workers can file an application for recognition of an occupational disease if they can show a total cumulated dose of 5 mSv. This is a major contradiction since, according to the ICRP's latest recommendations (2007), it is permissible for workers to be exposed to 20 mSv per year in normal situations, and up to 1000 mSv in case of emergency. On this subject, I twice interrogated Nagataki Shigenobu, an adviser to the Japanese Prime Minister[4]: he evaded the issue by separating "Science" - that is the epidemiological studies of UNSCEAR and WHO, which are closely monitored by the IAEA - from "Policy", that is the various "social compromises" that a government must make depending of the situation. Thus, if the nuclear industry exposes workers to dangerous radiation levels in order to solve a crisis, or in normal times to perform the maintenance of power plants, in return, the industry agreed to pay a certain level of compensation for those who "accept to take that risk".
Regarding the "social compromise" mentioned by the Prime Minister's expert, we note that since 1991, fourteen Japanese workers

have been recognized as victims of occupational diseases as a result of employment in nuclear power plants. Some contracted leukemia after exposure to 50 mSv per year. However, in Fukushima City, which is nearly 50 miles from the nuclear plant, some neighborhoods show levels close to 60 mSv per year. Such levels are similar to a nuclear plant's "controlled areas", which are exposed to high rates of radiation. For example, in 2009, even at Fukushima Daiichi which is one of the oldest Japanese nuclear plants (thus accumulating more radiation), according to the figures from TEPCO and NISA, no worker was exposed to over 20 mSv a year.

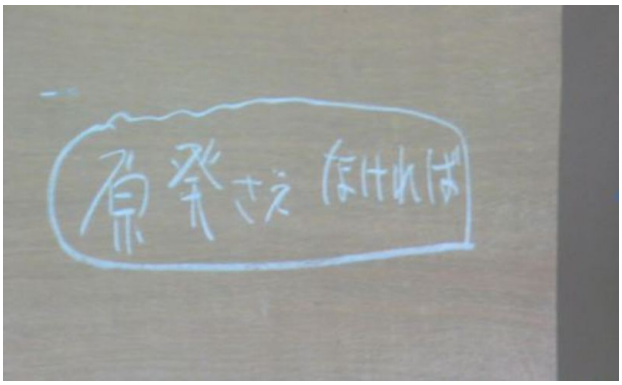
But so far, the authorities have not evacuated Fukushima city. Nor is evacuation on their agenda, since this would mean government commitment to compensate an additional 290,000 residents.
Obviously workers are not the only ones who are at risk from over-exposure to external radiation, although their risk is highest. The population is at risk too, as if the entire prefecture of Fukushima has become a vast "controlled area".

What is the government's response to internal contamination when radioactive particles are inhaled or when contaminated food is ingested?

The major problem is that the government is not investing enough in monitoring devices for food. Of course, these devices are more expensive than simple dosimeters, and there is also the high cost of the labor required to perform systematic tests.
However, this would be more effective than the "decontamination" operations being proposed and conducted in Fukushima. For example, the nuclear lobby has urged the Government to provide grants for cleaning with pressurized water guns!

Decontamination work (*josen*) in Iidatemura, 13 January, 2012. (Photo: Kristopher Stevens)

This is really not a good idea. At best, it will transfer the contamination from the soil to the rivers. And as farmers in Minamisoma and Iitate - two cities in Fukushima Prefecture - explained to me, it is even more absurd that these operations are conducted in residential areas and farms, ignoring the tops of the hills, the woods and forests, which are the most contaminated areas. Since these areas are neglected, when rain falls, it carries the pollution back downstream!
It would be wiser to compensate farmers and encourage those who wish to move to depopulated and aging rural areas, which are numerous in Japan. But this is obviously not the priority of the industrial sector nor the "social compromise" planned.



A testament written with chalk on a desk by an Iitate farmer before committing suicide. "Genpatsu sae nakereba": "If only there were no nuclear plants" (Photo: Hasegawa Ken'ichi)

What attitudes do the public and the media take toward this issue?

Many prefer to turn a blind eye as it is reassuring to believe TEPCO's nonsense and the nostrums provided by scholars associated with the nuclear lobby. But there is also a growing awareness of the problem, which can be observed for example through the vast mobilization in the region of Fukushima and Tokyo among citizens and on the Internet. In mid-January, a conference organized in Yokohama by a forum of antinuclear associations brought together 11,500 people including researchers and activists over two days.
In the first month of the crisis, the mainstream media mostly conveyed partial and misleading information released by TEPCO and the nuclear safety authority (NISA). It would have been better to highlight the information published by organizations like the Citizen Nuclear Information Center (CNIC), which reacted more quickly and provided independent information through the Internet. Today, the situation has changed in part. Some mainstream media now contribute significantly to public awareness of the dangers of radiation. This includes the *Tokyo Shinbun* and *Mainichi Shinbun* newspapers, the weekly *Sekai* and *Shūkan Kinyōbi,* the monthly magazine *Days Japan*, and some programs of the national television broadcaster NHK. For example, in a documentary broadcast last December, NHK challenged the economic biases of the ICRP recommendations. The nuclear lobby then protested this documentary had biases itself![5]

Are nuclear workers more aware of the risks posed by radiation?

It depends on which workers. Temporary subcontract workers who have never entered a nuclear plant before probably have a very vague perception of these risks. Among senior nuclear power plant workers, awareness varies.
During the first week of the crisis, those who remained or returned to work at Fukushima Daiichi were well aware that it was very dangerous. Some wanted to take responsibility and from the month of June, the worst seemed to have been avoided. But this did not mean that all the workers on-site had precise knowledge of the risks they were taking. I remember for example a young skilled worker, TS, whom I met for the first time in late June. He provided a very genuine and sincere account of the first weeks of the disaster. He had very good technical knowledge of the power plant operating system, including the reactor buildings. However, he had very limited understanding of the consequences for health of a sudden or prolonged exposure to significant amounts of radiation. At our second meeting, in late July, he agreed to meet in the company of a friend who is involved in union negotiations with the Ministry of Health and Labor. They kept in touch afterwards, and today, TS regularly informs his co-workers of the risks.

At the Yokohama symposium on occupational exposure in nuclear plants in January 2012, journalist Fuse Yūji invited Mr. Ookawa to give testimony. He was employed for 16 years in the nuclear sector, in the fourth level of subcontracting, working on air conditioning and plumbing. In early April 2011, he received a dose of 16 mSv in just four days, whereas the average dose was about 2 mSv per year before the disaster. He said that, given his age, he was not afraid at the time. Still, he stopped working and is

Conference for a Nuclear Free World, Yokohama, Jan.14-15, 2011. Author is second left panelist (Photo: Aiya Hsu)

Children during Conference for a Nuclear Free World, Yokohama, Jan.14-15, 2011. (Photo: Aiya Hsu)

thinking about filing a lawsuit against his employer or TEPCO for having subjected him to overexposure without warning. Gradually, thanks to contact with anti-nuclear associations, trade unions based in Tokyo or Osaka and some journalists and researchers, these workers have realized the price they, or their children, might pay.[6] Associations are trying to negotiate with the Ministry of Health and Labor to restore the maximum level of exposure to the previous level of 20 mSv per year. They are also calling for a precise definition of the notion of "emergency work", as the "emergency" could justify maintaining high standards of radiation exposure for many years to come.

What defines the urgency and the gravity of the situation?

This is a never-ending question. I interviewed the deputy head of the emergency response unit of the IRSN (French Institute for Radiological Protection and Nuclear Safety), who was sent to the French embassy in Japan on March 12, 2011. He commented that at that time, the major challenge was to save the storage pools of used fuel rods from meltdown. This was even more vital than saving the reactors, since if the fuel rods in the pools melt, they would produce radioactivity levels that could not be measured in hundreds of *milli*sieverts but would need to be measured in hundreds or thousands of sieverts! In that case, TEPCO would have been unable to intervene by sending in workers. It would lose complete control of the site. The result might then be something like a Godzilla movie, an apocalyptic scenario. As a recent 'independent' report suggests, at the very least, Tokyo should have been evacuated.[7] I doubt the authors' independence because they focus their criticism on Prime Minister Kan Naoto, avoiding discussion of the responsibility of the nuclear industry lobby, which, unlike the former Prime Minister, is still very active. Nevertheless, the report confirms that the tremendous risk posed by the nuclear meltdown, is indeed far "beyond expectations". The storage pools, in particular those of reactor no 4, might not survive another significant seismic event, as nuclear scientist Koide Hiroaki made crystal clear in a March 9, 2012 interview with Asahi Television.[8]
In short, if the nuclear "risk managers" themselves tell us that the industry's risk exceeds the probability calculations, a risk so great that they do not even want to think about it, we had better take their word for it.

This interview was translated from the French by Cerise Phiv, edited by Daniel Pagan Murphy (for eRenlai.com), and further edited by Mark Selden and Paul Jobin for the Asia-Pacific Journal.

A previous version of the interview was published in French in Nouvel observateur.

See also Paul Jobin, "Back to Fukushima."

See in addition, Paul Jobin, "Dying for TEPCO? Fukushima's Nuclear Contract Workers," *The Asia-Pacific Journal* Vol 9, Issue 18 No. 3, May 2, 2011.

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Articles on related subjects

•Jeff Kingston, Mismanaging Risk and the Fukushima Nuclear Crisis

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•Gayle Greene, Science with a Skew: The Nuclear Power Industry After Chernobyl and Fukushima

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Notes

[1] Yuki Tanaka and Peter Kuznick, Japan, the Atomic Bomb, and the "Peaceful Uses of Nuclear Power" The Asia-Pacific Journal, *Vol 9, Issue 18 No 1, May 2, 2011.*

[2] Sawada Shōji, emeritus professor at the University of Nagoya, explained clearly how the neglect of internal contamination on the cohorts of Hiroshima and Nagasaki *hibakusha* led to obvious minimization of the consequences of even low-doses of radiation. See here.

[3] "20 Millisieverts for Children and Kosako Toshisō's Resignation," The Asia-Pacific Journal, May 1, 2011

[4] *Shushō kantei genshiryoku senmonka gurupu*: see here.

[5] *Tsuiseki shinsō fairu*, NHK, 26 December 2011.

See also the defense of that documentary by Prof.Sawada Shōji against the protest of the nuclear lobby, in *Days Japan*, March 2012. Another NHK documentary, on January 15, 2012, "Umi kara no hokoku" was an outstanding investigation in collaboration with scholars on marine contamination. Hot spots were found as far as 100 km from Fukushima Daiichi. See here.

[6] See the report by the German TV-channel ZDF (with English subtitles).

[7] See here.

[8] See here.