

Japan's Natural Perils, and Promises, in the Wake of Fukushima 日本の自然が孕む危険と可能性 フクシマを機に

Nassrine Azimi

Between 2012 and 2014 we posted a number of articles on contemporary affairs without giving them volume and issue numbers or dates. Often the date can be determined from internal evidence in the article, but sometimes not. We have decided retrospectively to list all of them as Volume 10, Issue 54 with a date of 2012 with the understanding that all were published between 2012 and 2014.

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The first paragraph in the first volume of A History of Japan, by the scholarly British diplomat Sir George Sansom, is a detailed description of the islands' geology.

Writing in 1958 of the country he so loved, with its "mighty volcanic convulsions", Sir George depicts the physical drama of peaks soaring two miles above and plunging five miles below sea level, and wisely cautions that "so immense a range of elevation within short lateral distances develops such stresses that this part of the earth's crust is a highly unstable area...."

The Japan Landslide Society simply calls this archipelago the "Scar-Laden Islands."

In August this year we witnessed at close range just how scar-laden: massive rains and landslides brought down entire mountaintops in many suburbs of Hiroshima, killing scores. The tragedy could well happen in other parts of the country.

Then on September 27th the sacred, unpredictable Mount Ontake erupted suddenly, trapping hundreds of climbers out to admire its famed autumn foliage. The eruption prompted a massive and dangerous rescue operation by thousands of firefighters, police and Self-Defense Forces members. Still, at least 60 people are reported dead.

In the aftermath of the eruption, the government promptly called for renewed efforts at monitoring volcanic activity. Yet Mount Ontake, listed as one of the country's 110 active volcanos, was already under close scrutiny by the Meteorological Agency; intensifying tremors--85 on September 11 alone--had been registered but not deemed threatening.

In technology-overloaded Japan, monitoring

hardly seems the problem.

Rather, volcanic eruptions--and other natural disasters--in a land perched on the edge of the Ring of Fire and straddling four tectonic plates should be considered the norm. And some scientists now worry that the magnitude 9 earthquake of March 11, 2011 may well intensify risks--this July a French geophysicist and his team released a study suggesting pressure is building on Mount Fuji, also an active volcano.

Last week the three prefectures at the foot of Mount Fuji conducted eruption drills, sobered by the experience of how ash from the Mount Ontake eruption had completely disrupted rescue operations. Similarly, earlier this month, the respected volcanologist Fujii Toshitsugu, professor emeritus at the University of Tokyo and head of a government-commissioned panel, challenged assumptions that the Sendai reactors in Kyushu, first in-line in the government's schedule to reactivate dormant nuclear plants, were immune to volcanic eruptions. He suggested that heavy ash from the eruption of Mount Sakurajima -- only 40 kilometers from the plant -- could make reaching the plant and basic evacuation protocols quite impossible.

If natural disasters are simply unavoidable, then for a country smaller than the state of California and with more than three times the population, the presence of nuclear power plants seems, to say the least, a little akin to playing Russian roulette.

During recent Diet debates, Obuchi Yuko, then minister of economy, trade and industry and till

two weeks ago an upcoming star of the ruling Liberal Democratic Party, insisted that in its push to restart nuclear plants the government was adamant about ensuring the strictest safety measures, stating that such standards were similar to those of France and other advanced nations.

The comparison to France, often made, is hardly apt: France is not perennially threatened by massive earthquakes, tsunamis or volcanic eruptions, nor is it on the path of mega typhoons (like the two which battered us just this month). In the past year, alone, Japan has had hundreds of small earthquakes, while France has had five. Japan is also two-thirds smaller than France, with almost double the population. The risk factors, when it comes to nuclear power plants, are fundamentally different.

In late September, a group of us from Hiroshima returned to Fukushima, to see for ourselves how rebuilding was progressing. Of the three prefectures which took the brunt of the earthquake and tsunami in 2011 Fukushima, with the decommissioned yet still precarious No. 1 (Daiichi) nuclear power plant, is the one still gripped by deep uncertainty, even if both Miyagi and Iwate suffered greater human losses from the tsunami (by a factor of five in Miyagi): they have mourned, grieved, collected huge piles of tsunamis debris and are now pressing ahead with reconstruction plans.

Not Fukushima. Large swaths of the prefecture remain unsettled. Within the nuclear plant's 20-kilometer exclusion zone most towns are empty. As we drove through the eerily silent streets of those closest to the battered plant, Tashiro Akira, a veteran investigative reporter who has written extensively on nuclear

accidents, gave us rough estimates of their pre-disaster populations--and of their current status: Namie (22,000, now semi-restricted), Futaba (7400, still abandoned), Okuma (11,515, still abandoned), Tomioka (15,800, still abandoned), Naraha (8200, now semi-restricted).



Namie Town Ukedo-chiku district. Photo by Tashiro Akira.

Namie Town with chimneys of Fukushima Daiichi Plant in the background. Photo by Tashiro Akira.

The quick money that had been flowing from TEPCO to these communities in the past decades does not seem to have left much in terms of quality buildings or a decent urban environment. But an abandoned city is nonetheless a mournful sight: curtains still in place, kitchen-ware glimpsed through a window, children's bicycles parked outside empty homes.

In Minami Soma we visited the Farm Sanctuary, 14 kilometers from the beleaguered power plant, where an irreverent cattle farmer by the name of Yoshizawa Masami has chosen to defy authorities and remain with his animals. Called Kibo no Bokujyo (Ranch of Hope) in Japanese, it also offers a place for other farmers who have had to abandon their lands but do not know what to do with their contaminated animals. The Farm Sanctuary has become a sort of unofficial test site, to monitor the effects of radiation on animals.

But even more distant towns, like Iitate, remain in limbo. Some 45 kilometers from the plant, Iitate was initially designated a safe haven before it, too, was found to be a radioactive hotspot. Its 6000 inhabitants have now either left or can only come in during day-time hours. A superbly-built nursing home for the elderly now caters to the few remaining residents - average age 87 - who were simply too old to move. Room after room is empty - it is impossible to find staff willing or able to live and work in Iitate.

A farming and ranching community before the nuclear disaster, the only people we did see at work in Iitate were some of 3000 contract workers, whose job is to remove contaminated topsoil -- part of the government's complex and questionable decontamination policy. The topsoil, alongside leaves and other plant material, is then stuffed into thousands of black plastic containers, now scattered across the landscape. Naturally no region is willing to accept the dreaded material, despite pressures and monetary cajoling by the central government. The cleanup, which was meant to be completed this March, has just been extended by another two years.



Photo by Tashiro Akira.

As we viewed the landscape, the idea that Iitate and other cities affected by the nuclear accident could soon return to business as usual -- through diligent scrubbing of roofs and removal of topsoil -- seemed far-fetched indeed: like the rest of Fukushima Iitate is covered with

mountains and forests, exposed to natural elements. In her thoughtful and meticulously researched article entitled 'Touching the Grass: Science, Uncertainty and Everyday life from Chernobyl to Fukushima'¹¹ (https://apjif.org/#_ftn1) Tessa Morris-Suzuki points to research on the topsoil removal, which can temporarily lower radiation levels, but the effects of which are dubious as 'radiation accumulated in leaf litter in the mountain forests is constantly washed down into farm fields by the flow of water, raising the levels of radioactivity again.'

Years (and billions of yen) could well be spent shifting topsoil, but would any young family be willing to raise kids there?

Dr. Kurokawa Kiyoshi, chairman of the Nuclear Accident Independent Investigative Committee has famously, and succinctly, quipped of the government's cleanup effort: "Water keeps building up inside the plant, and debris keeps piling up outside of it. This is all just one big shell game aimed at pushing off the problems until the future."¹² (https://apjif.org/#_ftn2)

Yet admitting the complexities raises fundamental problems for authorities, from the practical --i.e. compensation and relocation issues -- to the deeply ethical: if one single nuclear accident is proving so debilitating, how then, in the face of deep popular opposition, to justify bringing the country's dormant plants on-line, as the Abe government wishes to do? And if even Japan, a technology giant, is to put the nail to the coffin of its own towns in the aftermath of a nuclear accident, how to justify its planned exports to other nations?

So Fukushima's residents linger in uncertainty. The elderly, with less to fear of radiation's long-term effects, are resigned to return home; not those with young children. Many men, for the sake of jobs, would return but women, more concerned about their family's health, would not. The pressure on every family is huge. The new term *genpatsu rikon* (atomic divorce) captures the personal tragedies.

Morris-Suzuki highlights the difficulty, heightened in the Internet age, for ordinary people to live with the kind of insidious uncertainty that has become the hallmark of environmental, and especially nuclear, pollution. As night fell, we had to leave Iitate in time for the curfew that bans people from entering the area beyond certain hours. Driving down the mountain and past one dark, abandoned house after another, I better understood how tired the citizens of Fukushima were of the flow of visiting and pontificating delegates -- scientists and central authorities, singers, actors, upcoming politicians, idealistic students, well-intentioned foreigners... At the end of the day, however, we all left.

Hence a certain listlessness in Fukushima, that seems to afflict everyone and, contrary to most places, the young in particular. The welcoming and valiant senior staff at the fisheries association we visited near Iwaki City seemed reassured by their brand new machines sent to test radiation levels of incoming fish every week; the younger staff admitted readily that manning the complicated machinery was at times quite beyond their competence. In Koriyama, one of Fukushima Prefecture's three largest cities, the senior architect I interviewed expressed hope that large-scale building plans would restart soon. His younger colleague, father of young children, sat stone-faced, looking more doubtful.

There are those who point at Hiroshima and Nagasaki as the 'reassuring' story, of the possibility of revival after nuclear catastrophe. This is to forget the price paid and the discriminations faced by the survivors and at least two generations of Hiroshima and Nagasaki citizens. It is also to forget the differences between 1945 and 2011: there were no hand-held Geiger counters in every household then, no Internet to spread news of contaminated soil, fish, water or hotspots. Fukushima Prefecture was a prime food producer in Japan before the accident: when or even whether it shall retrieve that label again, in a globalized world where reputations are so easily made or broken, is an open question.

Still, by now Prime Minister Abe may have little political capital to lose on account of the physically close yet psychologically distant Fukushima. But as Andrew DeWit of Tokyo's Rikkyo University and an astute observer of Japanese energy policies has written in the *Asia-Pacific Journal* (<http://japanfocus.org/-Andrew-DeWit/4174>), the government's reluctance to declare a stark and clear commitment to renewables (and to the eventual closure of nuclear plants), is a significant opportunity loss.

Japan, DeWit writes, is hardly the "resource-poor" country pro-nuclear politicians so love to invoke. In terms of renewables, it sits among top contenders, with abundant thermal energy sources -- the bright side of being so disaster-prone. It is "blessed" with powerful winds and typhoons, waves, volcanoes, vast forests (68 percent of the land), torrential rivers and summers of scorching, ever-present sun.

Naysayers point to the challenges facing Germany, which after decades of an intense national debate, took the message of the Fukushima nuclear accident to heart and did what everyone had expected Japan to do: bring its reliance on nuclear energy to an end. Yes, Germany now struggles with its carbon emissions, but these will decline with time while the advantages -- including job creation -- of Germany's shift to green energy are already starting to outweigh the minuses.⁽³⁾ (https://apjjf.org/#_ftn3) The question to ask is rather what advantages could Japan have reaped, had its political leaders, even in the last few years, been half as 'green' as their German counterparts? It is enough to note how absent is anything close to a Green Party in mainstream Japanese politics to understand the obstacles to a fullscale commitment to green energy strategies in the wake of the Fukushima nuclear accident.

There are nevertheless bright spots to be found in a number of localities. The architect Ito Toyo -- winner of last year's Pritzker prize and an intelligent and compelling voice for the reconstruction of the Tohoku region after the March 2011 disasters -- has led experimental reconstruction projects in the affected areas. Ito has written of the need to question, as architects but even more as human beings what to do henceforth, of the need to 'go back to square one and reexamine the essential meaning of architecture.'⁽⁴⁾ (https://apjjf.org/#_ftn4) The same shift in thinking must apply to all of us, in particular the 'experts'.

Poll after poll have shown a steady majority of the Japanese far more willing than their politicians to embrace renewables and the "fifth fuel", conservation, rather than return to nuclear power. Given Japan's technological strengths, with the right leadership, policies

and technologies, a shift is ultimately possible. However well-packaged, nuclear accident cleanup just remains too difficult -- devouring massive time, money and energy, and none can ascertain that it works.

From time immemorial, Japan's greatest perils and privileges have come from Nature. This remains unchanged - or rather has become even more compelling - in the early 21st century. Ancient rites and rituals, seemingly arcane or irrelevant to challenges of our modern age, are but reminders of this immutable reality. Last year the Grand Shrine of Ise, the country's most sacred sanctuary, held its Sengu -- renewal -- ceremony, conducted since 690 AD at 20-year intervals. The rite has immensely practical value: the intricate architecture and carpentry of the structures, for example, demands intense and regular transmission of elaborate building techniques from generation to generation; the massive timbers require upkeep of designated forests and watersheds, and the special food offerings impose careful cultivation of nearby rice paddies, nurturing of fruit groves, care of fishing and gaming areas, the consistent sharing of knowledge about the land's ecology. They also bring, century after century, not just spiritual well-being but enormous revenues to Mie Prefecture.

Location. Location. Location. George Sansom was right, to start his history of Japan with geology. Or as my late father would constantly remind us: 'Never, ever, forget your geography'.

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[3]

(https://apjff.org/#_ftnref3)<http://energytransition.de> retrieved 27 October 2014

[4] (https://apjff.org/#_ftnref4) “Architecture. Possible here? ‘Home-for-All’”, Toto Publishing, Tokyo, 2013

Asia-Pacific Journal articles on related themes

Mayuzumi Madoka, So Happy to See Cherry Blossoms: Haiku from the Year of the Great Earthquake and Tsunami (<https://apjff.org/-Mayuzumi-Madoka/4193>)

[1] (https://apjff.org/#_ftnref1) Science Technology and Society Vol 19 No 3 (2014), 331-62 <http://sts.sagepub.com/content/19/3/331>

Andrew DeWit, A New Japanese Miracle? Its Hamstrung Feed-in Tarrif Actually Works (<https://apjff.org/-Andrew-DeWit/4185>)

[2] (https://apjff.org/#_ftnref2) <http://www.nytimes.com/2013/09/04/world/asia/errors-cast-doubt-on-japans-cleanup-of-nuclear-accident-site.html>

Robert Jacobs, The Radiation That Makes People Invisible: A Global Hibakusha Perspective (<https://apjff.org/-Robert-Jacobs/4157>)