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Citizens' Nuclear Information Center

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Japan's Plutonium Problem

Data shows a major stockpile
Disposal solutions hard to find

The Japanese Nuclear Regulation Authority (NRA) recently released the latest data on Japan's plutonium stockpile (see page 2) the total of which is growing year by year and has almost reached 50 tons, enough to build over 10,000 nuclear weapons. The security risk of this large stockpile of such a dangerous substance is obvious, but it also poses threats to non-proliferation, as it can be seen by other countries as preparation for nuclear weapons production.

CNIC Co-Director Hideyuki Ban outlines some of the problems presented by the data and the enormous challenges to reducing the stockpile in the future. This is followed on page 3 by a report of a CNIC open seminar where Tom Clements of Savannah River Site Watch spoke on the difficulties America is also facing in disposing of plutonium. As both Ban and Clements point out, with such a large plutonium stockpile already existing, as well as the immense unresolved safety issues at the Rokkasho Reprocessing Plant, Japan should not be considering commencing operations at this plant at all.

According to the latest data released by the NRA, Japan's plutonium stockpile held in the UK increased from 2014 to 2015, despite the fact that Japan no longer sends spent fuel to the UK for reprocessing. This increase is the result of plutonium allocated through a multinational reprocessing contract, which is ongoing. Moreover in France, there is a 30kg reduction both in Japan's "total plutonium" and its fissile plutonium, which is believed to reflect the nuclear loss which occurs when plutonium 241 transforms into americium 241.

Inside Japan, plutonium nitrate is produced at the Tokai Reprocessing Plant, and a portion of this is distributed to a fuel fabrication facility. However, presently no processing is taking place. Based on their assessment that Tokai Reprocessing Plant is unable to meet the seismic regulations introduced under the new regulation standards for nuclear facilities in Japan, JAEA (Japan Atomic Energy Agency) is moving toward decommissioning the plant. As such, no further plutonium separation will take place at Tokai. Concerning the processing of MOX fuel, Nuclear Regulation Authority head Shunichi Tanaka has indicated that all existing (MOX fuel) facilities that do not conform to these safety regulations will need to be replaced by new facilities (September 7, 2016, Regular Press Conference). However, considering that there is little hope for consuming the 4.1 tons of plutonium currently stored onsite, the question of how this plutonium should be processed or disposed of is a great challenge.

Inspections to determine whether the Rokkasho Reprocessing Plant meets the new regulations have required extensive time, and while scheduled for completion in early 2018, it is anticipated the deadline will be extended. There is a strong possibility that inspections at the adjacent fuel fabrication plant will also be delayed. Further, due to the small number of nuclear plants that utilize pluthermal and plutonium being restarted, plutonium consumption has been slowed, and it appears that Japan's plutonium stockpile will not be reduced for the foreseeable future.

(Hideyuki Ban, Co-Director, CNIC)

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Japanese Separated Plutonium Holdings at year end 2012-2015 (kg)

		2012			2013			2014			2015		
Separated plutonium held in Japan		total	JNFL	JAEA	total	JNFL	JAEA	total	JNFL	JAEA	total	JNFL	JAEA
Tokai Reprocessing Plant	plutonium nitrate	951	283	668	947	283	664	862	284	577	551	285	266
	plutonium oxide	3,412	3,329	83	3,412	3,329	84	3,460	3,329	131	3,575	3,329	246
	Total	4,363	3,612	751	4,359	3,611	748	4,322	3,613	709	4,126	3,614	512
	Total Fissile Plutonium	2,846	2,348	498	2,843	2,347	496	2,815	2,348	467	2,684	2,348	336
MOX Fuel Fabrication Plant	plutonium oxide	1,939			1,937			1,974		1,974	2,150		2,150
	testing and fabrication stage	978			891			983		983	999		999
	fabricated fuel	446			446			446		446	446		446
	Total	3,364			3,364			3,404		3,404	3,596		3,596
	Total Fissile Plutonium	2,333			2,333			2,361		2,361	2,490		2,490
In Nuclear Reactors	Joyo	134			134			134			134		
	Monju	31			31			31			31		
	Fugen	0			0			0			0		
	power reactors in use	959			2,501			2,501			2,501		
	research & development	444			444			444			444		
	Total	1,568			3,109			3,109			3,109		
	Total Fissile Plutonium	1,136			2,133			2,133			2,133		
Total		9,295			10,833			10,835			10,832		
Total Fissile Plutonium		6,315			7,309			7,310			7,307		
Separated plutonium held overseas													
Overseas	UK	17,052			20,002			20,696			20,868		
	France	17,895			16,310			16,278			16,248		
Total		34,946			36,312			36,974			37,115		
Fissile	UK	11,622			13,526			13,939			14,032		
	France	11,655			10,604			10,572			10,542		
Total Fissile Plutonium		23,277			24,130			24,511			24,574		
Total (Domestic+Overseas)		44,241			47,145			47,809			47,947		

* Our addition of subtotals may be slightly inaccurate due to rounding.

Shared Dilemma: The Plutonium Problem in US and Japan

~Report on CNIC open research seminar with Tom Clements, Savannah River Site Watch

On August 10, CNIC held an open research seminar with Tom Clements, Director of Savannah River Site (SRS) Watch, an NGO based in South Carolina, US. He gave a report on the many problems associated with the U.S. Department of Energy's Savannah River Site, one of the largest nuclear facilities in the US, focusing on plutonium disposal. 13 metric tons of surplus weapons plutonium are stored at SRS and 331 kg of plutonium, previously stored at the Fast Critical Assembly (FCA) in Tokai Village, Japan, were shipped to the site earlier this year.

With SRS also accepting plutonium from Switzerland and Germany in March this year and more international shipments planned, Tom said SRS was in danger of becoming an international nuclear waste dump, with no clear plan of how to actually dispose of all this plutonium. The people of South Carolina, and even the Governor of the state, have been vocal in their opposition to this status. Regarding the Japanese shipment, Tom suggested that if transporting the plutonium from Tokai Village to his home state had really been in the interests of non-proliferation, then possibly the people of South Carolina may have been more receptive, but, he claimed, it was carried out purely for political reasons, to fulfill a misguided promise made by the Japanese Prime Minister Shinzo Abe to President Obama during the 2014 Nuclear Security Summit. "If Japan was really serious in reducing the security risk of plutonium stockpiles, then the Prime Minister should have promised that Japan would stop producing it. He should have promised that Rokkasho Reprocessing Plant (RRP) would be scrapped, but instead our leaders chose to make a meaningless gesture that burdens the people of South Carolina even further."

SRS played a major role in producing materials for the US nuclear arsenal, from the 1950s through till the end of the Cold War in the early 1990s. Since then, somewhat ironically, one of its major jobs has been to dispose of the plutonium from weapons that are being decommissioned after the end of the Cold War. In 2000 the US and Russia made an agreement to each dispose of 34 tons of plutonium from such decommissioned weapons. The agreed method of disposal was to make the plutonium into MOX fuel and burn it in commercial reactors. For this purpose, construction of a MOX fabrication factory was begun at SRS in 2007, but there have been many problems, both technical (e.g. flaws in the Areva designs which have caused long delays) and commercial (e.g. a lack of reactors that can actually use MOX fuel because of the large costs and problems involved compared to using regular uranium fuel).

Tom Clements with a clear message

The origins of the US MOX program were quite different from the Japanese program. Though MOX was never seen primarily as a commercial fuel in the US but rather a way of disposing of weapons grade plutonium, according to Tom there are still lessons for Japan in the US experience. In 2014 the US Department of Energy (DoE) Plutonium Working Group estimated that disposing of the plutonium stockpile by down-blending and then direct disposal as nuclear waste would be significantly more cost-effective than burning it as MOX fuel. Even though the MOX fabrication factory at SRS is about 50% complete, and 5 billion dollars has already been spent on it, in the Fiscal Year 2017 budget, the DoE is proposing that the project be abandoned and instead the much less costly and also faster method of disposal using down-blending be adopted. The DoE figures estimate that MOX disposal will cost upwards of a total of 32.68 billion dollars more than down-blending, packaging and direct disposal. Tom, who believes that the US MOX plant will never be finished or operate, also explained the various other plutonium disposal methods investigated at SRS over the years.

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The US controversy over the possible adoption of "no-first-use" nuclear weapons policy — **What is Japan's involvement?**

About the beginning of July 2016, the media began to report that the Obama administration is weighing the adoption of a "no-first-use" policy of nuclear weapons, which would limit the use of nuclear arsenals by the United States to retaliatory strikes only; namely, if adopted, the country would use nuclear weapons only after it or any of its allies were so attacked. If the U.S. declares the no-first-use pledge, the role of nuclear arms in the country would become significantly smaller. Furthermore, the U.S. would be able to cancel the conventional alert system that is capable of launching nuclear arsenals on a minute-by-minute basis, reducing the risk of an incidental outbreak of a nuclear war. However, the media has reported that U.S. allies under the U.S. "nuclear umbrella," including Japan, South Korea, and NATO members, are against such a policy change, being concerned that the change would weaken the nuclear deterrence against possible attacks by their adversaries using means other than nuclear weapons. The Obama administration attempted to include the no-first-use policy in the *Nuclear Posture Review*, which was revised in 2010, but abandoned the idea, failing to gain the consent of allies, including Japan. Mr. Obama, scheduled to end his term in office in six months, resubmitted this proposal to leave a legacy of his presidency as a milestone toward nuclear disarmament, according to sources.

Concerned about the possibility that the Japanese government's opposition might have an adverse influence on the U.S. administration's possible nuclear policy change, we, the Citizens' Nuclear Information Center, together with the Japan National Congress against A- and H-Bombs (Gensuikin Congress) and the author of the website Kakujoho (Nuclear Information), sent a written proposal to the Japanese government on July 27, 2016. The letter requested that, 1), even if the US adopts the no-first-use policy, Japan should declare that it will never arm itself with nuclear weapons; 2), the Japanese government should support the US policy of reducing the role of nuclear weapons that the Obama administration is reported to be pursuing; and 3), if the Japanese government is unable to meet these two proposals, the Japanese government should explain, to the Japanese population and to the world, according to what scenarios Japan believes that the United States would wish to start a nuclear war by becoming the first user of nuclear weapons.[i] In addition, on August 9, 2016, under the initiative of the author of the Kakujoho website, the three parties sent an international open letter addressed to Japanese Prime Minister Shinzo Abe, signed by 17 countries and 120 international organizations, stating: "Please do not oppose a US pledge not to be the first to use nuclear weapons in a conflict."[ii]

Of the three proposals, allow me to discuss the first proposal in detail. The August 12, 2016 issue of *Wall Street Journal* reported that a discussion was held within the US administration as to the no-first-use issue, and that, according to an anonymous source, US Secretary of Defense Ash Carter said, "it risked provoking insecurity about the US deterrent among allies, some of which then could pursue their own nuclear programs in response."[iii] This article does not name any specific countries that might seek to arm themselves with nuclear weapons. However, back on May 6, 2009, former Secretary of Defense James Schlesinger stated at a hearing of the House Committee on Armed Services about the final report of the Congressional Commission on the Strategic Posture of the United States, "Japan… is the country that has perhaps the greatest leaning amongst the 30-odd nations that we have under the umbrella to create its own nuclear force."[iv] The statement by the current Secretary of Defense directly referred to Japan, which has long been a strong advocator of nuclear abolition as the only nation which has been the victim of wartime use of atomic bombs.

Despite our proposals, the August 14, 2016 issue of *The Washington Post* reported that multiple US allies are against the potential US adoption of the no-first-use policy, and that Japan was especially concerned that, if the US assumed that policy, deterrence against North Korea would deteriorate, increasing the risk of a collision.[v]

On September 5, 2016, *The New York Times* reported that, as a result of discussions within the administration, Mr. Obama is inclined to give up the no-first-use pledge.[vi] The article introduced the argument of Secretary of State John Kerry, who objected to the president's proposal: "Japan would be unnerved by any diminution of the American nuclear umbrella,

and perhaps be tempted to obtain their own weapons. The same argument, he [Mr. Kerry] said, applied to South Korea." As we had feared, and much to our regret, Japan's posture interfered with the possible policy change of the US government concerning a first use of nuclear weapons.

However, could Japan really arm itself with nuclear weapons? The then Japanese Agency of Defense (predecessor of the Ministry of Defense), in its 1995 report entitled "Concerning the Problem of the Proliferation of Weapons of Mass Destruction" stated: ". . . the nuclear option is not a favorable one for Japan. . . Since the suspicion concerning possession of nuclear weapons will be disadvantageous for confidence building with neighboring countries, what is appropriate for Japan is to express, as an understanding on the military side, that Japan will not adopt the nuclear option . . ." [vii] As a matter of fact, the Japanese government does not have the choice of developing its own nuclear weapons. The truth behind the US president's abandoning of the no-first-use policy is probably that the Japanese and US parties that are against the US nuclear policy change have taken advantage of the US administration's concerns about Japan possibly arming itself with nuclear weapons, which are no more than hallucinatory.

One of the reasons the US administration is concerned about Japan possessing nuclear armaments is that Japan has spent nuclear fuel reprocessing technology and owns plutonium stocks to the amounts of 11 tons within the country and 37 tons in other countries. As long as the country owns reprocessing technology, however strongly Japan advocates nuclear disarmament, concerns about Japan's potential possession of nuclear weapons cannot be erased. If the Japanese government regards nuclear disarmament as a national policy, it should not only support the US policy shift toward no first use of nuclear weapons, but also abandon its reprocessing technology.

To further look into this issue, the Citizen's Nuclear Information Center plans to hold an international symposium in February 2017, to examine the problems of Japan's nuclear fuel cycle policy, in the light of the Japan–U.S. Nuclear Cooperation Agreement, which is scheduled to be revised in 2018.

(Hajime Matuskubo, CNIC)

i) http://kakujoho.net/npt/lttr_nfu.html#d2

ii) http://kakujoho.net/npt/lttr_nfu2.html

iii) http://www.wsj.com/articles/no-first-use-nuclear-policyproposal-assailed-by-u-s-cabinet-officials-allies-1471042014

iv) https://votesmart.org/public-statement/425508/hearing-of-the-house-armed-services-committee-the-report-of-the-congressional-commission-on-the-strategic-posture-of-the-united-states#.V9SWKJiLSM8

v) https://www.washingtonpost.com/opinions/global-opinions/allies-unite-to-block-an-obama-legacy/2016/08/14/cdb8d8e4-60b9-11e6-8e45-477372e89d78_story.html?utm_term=.91e1afefb02c

vi) http://www.nytimes.com/2016/09/06/science/obama-unlikely-to-vow-no-first-use-of-nuclear-weapons.html?_r=0

vii) http://www.ucsusa.org/nuclear-weapons/us-nuclear-weapons-policy/japan-america-nuclear-posture#.V9SYApiLSM8

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Tom maintains that vitrifying plutonium with high-level waste is perhaps the most efficient method of disposal but the vitrification program at SRS was stopped in April 2002. Compared with MOX, however, down-blending, where the oxidized plutonium is blended with a secret ingredient known as 'stardust' and packaged and disposed of as waste, is a better option. The fate of the MOX project is in the hands of the U.S. Congress, which has kept the annual funding at an insufficient level for the project to be completed.

It is a terrible irony that SRS spent the first half of its existence in efforts to produce nuclear materials for weapons and then the second half of its existence in trying to dispose of plutonium produced for these very weapons. But the irony is even more terrible that Japan plans to massively increase its production of plutonium, the substance that is now causing SRS such a headache to dispose of. Japan plans to use this separated plutonium partly as MOX fuel in its pluthermal project, but the DoE has basically abandoned its MOX program due to high costs and inefficiencies. Lessons for Japan are clear: don't sink further into the technical and economic quagmire of reprocessing and MOX production. As a nation that is supposed to be serious about non-proliferation, rather than making empty gestures like shipping 331 kg of plutonium to an already over-burdened SRS, it is essential that Japan scrap the Rokkasho reprocessing plant with its planned production of 8 tons of weapon-usable plutonium per year. Instead, Japan and the US should join together in developing methods to manage and dispose of plutonium as nuclear waste.

(Caitlin Stronell, CNIC)

Japan and India: together on the wrong side of history

This year-end, the Indian Prime Minister will visit Tokyo and there are speculations that the India-Japan nuclear agreement will be finalised during his trip. Last year, the Japanese PM visited New Delhi, and the two countries signed a Memorandum-of-Understanding, declaring an in-principle consummation of the deal while the details will be worked out for final agreement. Since then, the two governments, and the media in both countries, have been telling different stories to their people, maintaining a complete secrecy about the actual terms of the agreement. While the Japanese PM asserted in parliament that India has agreed to include a no-test pledge as part of the bilateral agreement, the Indian side has claimed that its insistence for keeping the nuclear test option open has been accommodated.

Kumar Sundaram speaks at CNIC's open research seminar on August 16

While this agreement will unleash a host of issues if the supply of nuclear technology to India starts, in terms of the attendant problems of an unsafe, uneconomic and undemocratic nuclear expansion in India, it is important to recognize that from international perspective, this agreement is part of the larger developments in the past decade which have reversed the gains of the global non-proliferation order.

The global nuclear architecture is facing crisis

The international nuclear order, built around the Nuclear Non-Proliferation Treaty (NPT), is under the most serious strain since its founding in late 1968. All the three major central tenets of this near-universal treaty are facing terminal crisis. Firstly, the NPT Treaty said that non-nuclear weapons will ensure non-proliferation of nuclear weapons. Today, ironically more than 30 countries have the wherewithal and know-how for making nuclear weapons, precisely because of the NPT. Secondly, the NPT said that the member states would have an 'inalienable right' to the so called peaceful nuclear technology. This pillar of the grand bargain is being used by all potential proliferators to amass advanced nuclear capabilities, and reach a threshold where weaponisation remains only a matter of political decision. Despite the undeniable link that has emerged in the past five decades between the civilian and military uses of nuclear technology, the NPT system has not been able to rectify this central contradiction because the nuclear weapons states have not fulfilled the promise to negotiate global disarmament, which is the third important pillar of this treaty. Not only do the NPT weapons states continue to hold nuclear weapons central to their national security, they are investing heavily in modernisation of their nuclear arsenals. The most basic step in this direction – a ban on further nuclear tests, a promise on which the NPT was extended indefinitely in 1995 – has also remained elusive.

Nothing could be more telling about the glaring crisis in the regime and the urgent challenge that it represents than the failure of the NPT Review Conference last year. The 2015 RevCon failed to produce a final document. The primary reason was the failure to implement the resolution of the previous RevCon which called for a zone free of weapons of mass destruction in the Middle-East. The insistence of the non-aligned countries to hold the 'inalienable right' clause non-negotiable and the failure on behalf of the weapons states to move in the direction of abolition of weapons, even notionally, underpinned this crisis.

What would have been the imperatives in such a situation? Nothing short of an overhaul of the global order can prevent the NPT regime's destruction now, and especially countries like India and Japan, which claim to have progressive foreign policies born out of their experiences of colonial control and nuclear bombing, could play a more positive role here. The current situation demands three sets of remedies. The first is adoption of more honest, credible and consistent efforts towards

the abolition of nuclear weapons. This would provide the regime with the required confidence and moral force to convince the member states to revisit the promise of nuclear supplies for 'peaceful' purposes and thus plug the second hole in the NPT system. Thirdly, the experience of the Fukushima disaster should have led to joint international mechanisms to put in place more stringent and transparent safety norms for the nuclear power industry and an eventual shift away from nuclear energy.

Japan and India could play an important role for all the three aforesaid imperatives. As the victim of both nuclear bombing and a nuclear energy accident, Japan could lead the world towards a nuclear-free future, highlighting the inextricable link between the two forms of this technology and introducing progressive revisions in the system for the same.

However, the developments of recent years have been exactly the opposite and extremely disappointing. In place of assuming leadership for a more responsible nuclear world in immediate terms, Japan's accession to the Convention for Supplementary Compensation (CSC) provided this industry-promoted template with the final push required to enter into force. The CSC leaves the potential victims of a nuclear accident hapless as it channels the nuclear liability in case of an accident exclusively to the operator of the plant and not the manufacturers or suppliers of equipment. Also, it puts a ridiculously low cap on the total liability amount. The CSC was drafted before the Fukushima accident and Japan had a moral responsibility to insist that the lessons of the ongoing accident are adopted in this convention. Similarly, India is one of the handful of countries having a massive nuclear expansion plan in the post-Fukushima world and the least it could do is to use its attractive market to negotiate a better deal for its citizens and induce positive changes in the CSC. Both countries could jointly work for this goal, but their governments chose to side with the international lobbies rather than the safety and rights of their own citizens.

A number of countries have turned away from nuclear energy after Fukushima and have embarked on the path of adopting renewable and sustainable energy technologies on an unforeseen scale. They are having real success, aided also by the increasingly cheaper and efficient alternative energy sources. Japan could lead the world in this direction after Fukushima, and India, being at a threshold of development where it could make real choices for its huge population, creating an example for the rest of the developing world to follow. But here again, Japan has sided with an extremely conservative energy policy which effectively discourages the renewable sector by actually burdening it with the economic losses of Fukushima. And India has chosen to let go of the post-Fukushima moment as it denies any rethinking of its nuclear purchase agreements with France, US, Russia and other countries, made before the Fukushima accident and essentially in return for legitimacy for its nuclear weapons. In the post-Fukushima world, India is not only buying expensive and unsafe nuclear reactors, but is also violently repressing local communities and silencing any informed dissent on the issue, calling it anti-national.

Similarly, India and Japan, because of their history and location in the world's geo-politics, could together take leadership in advancing global nuclear disarmament. However, nothing could be more disappointing than Japan under PM Shinzo Abe putting strong reservations on a global nuclear no-first-use pledge in the 70th year of the Hiroshima bombing. This is a revisionist departure from Japan's central foreign policy tenet in the postwar period. Similarly, India is also investing heavily in the nuclear triad.* The new government, led by the Hindu nationalist BJP, has opened a Pandora's box by calling for the revision of the minimum credible deterrence posture.

Therefore, we are faced with a situation where these two countries, notwithstanding their rhetoric about pacifism, Mahatma Gandhi, Buddha and non-violence, are actively contributing to the falling apart of the global nuclear restraint and non-proliferation architecture. An active and engaged civil society intervention by the people of the two countries, as well as the international community, is required to ensure that India-Japan and their nuclear tangos do not remain part of the problem.

(Kumar Sundaram, Coalition for Nuclear Disarmament and Peace, New Delhi, India)

*'Nuclear triad' refers to three different types of delivery of nuclear weapons: traditional strategic bombers, intercontinental ballistic missiles and submarine-launched ballistic missiles.

Nuclear Reactor Restarts in Japan

Utilities face costly and risky uphill battles

On August 12, 2016, Shikoku Electric Power Co. (SEPC) restarted Unit 3, an 890-megawatt (MW) pressurized-water reactor (PWR) at its Ikata Nuclear Power Station (INPS) in Ehime Prefecture. This nuclear power plant is situated in Ikata, the western-most town of Shikoku Island. It was decided to decommission INPS's Unit 1, a 566-MW PWR, on May 10 this year, 38 years and 8 months after the start of operation. Unit 2 is also a 566-MW PWR, which had been operational for 34 years and 5 months as of the end of August 2016. The utility reportedly plans to restart this reactor but it has yet to apply for inspections to determine that the reactor complies with the new safety regulations formulated after the 2011 Fukushima nuclear disaster. Unit 3 is relatively new, 23 years and 8 months old, and its power output is 1.6 times greater than that of Unit 1 and Unit 2. For this reason, the utility has allegedly concluded that the 170 billion yen remodeling cost for meeting the new requirements will eventually be recovered if Unit 3 is brought back online. This amount is more than half the reactor's original construction cost.

As a result, the number of nuclear reactors reactivated after clearing the new safety regulations totaled five, including Units 3 and 4 (PWR, 870MW each) of Kansai Electric Power Co. (KEPCO)'s Takahama nuclear plant, and Units 1 and 2 (PWR, 890MW each) of Kyushu Electric Power Co.'s Sendai nuclear plant. Regarding Units 3 and 4 of the Takahama plant in Fukui Prefecture, however, the Otsu District Court issued an injunction on March 9, 2016, banning operation of the two units due to safety concerns. KEPCO's objection, filed against the court's decision, was rejected on July 12 and the two units currently remain idle. KEPCO has recently appealed the case to the Osaka High Court.

On August 26, 2016, newly-elected Kagoshima Prefectural Governor Satoshi Mitazono called on Kyushu Electric Power Co. to temporarily halt operation of Units 1 and 2 of the Sendai nuclear power plant. He also demanded that the utility conduct a survey of active faults around the plant as well as an inspection and verification of its facilities. Elected for the first time in the July 10th gubernatorial election, Mitazono is greatly concerned about the recent series of strong earthquakes, with magnitudes up to 7.3 that occurred in adjacent Kumamoto Prefecture in April 2016. Although the utility rejected his demand on September 5, it is certain that the operation of Unit 1 will be halted in October, and that of Unit 2 in December, for official inspections. The public are expected to watch the results of these inspections closely, which means that the second restart of the two reactors may become even more difficult than the first one.

In other words, no matter if the utilities ignore public opposition and resume operation of any of their nuclear plants, they may face a court order to halt operation immediately. Even if no trouble occurs at the plant, the reactors will go offline again in 13 months for regular maintenance. Many popular efforts to block the restart of nuclear reactors have been made, often in vain, but such efforts will probably serve as the basis for future campaigns against restarts of other reactors or against the second restarts of reactors after they have been shut down for maintenance. As of the end of August, applications for inspections to determine compliance with the new safety standards, the first step to restarting a reactor, had been filed for a total of 19 reactors nationwide. We are, therefore, determined to strengthen our capability to prevent restarts of nuclear reactors. Almost all public opinion polls conducted both nationwide and in local communities thus far show that the number of people against nuclear reactor restarts is far greater than the number of people in favor of them.

Although the Shikoku utility insists that the remodeling costs spent on restarting Unit 3 are recoverable, we believe that they will not be even if the operation period is extended beyond 40 years. On the contrary, it is quite possible that the reactor will face a shutdown in the near future.

On March 11, 2016, a group of local residents filed an application for a temporary injunction to halt the operation of Unit 3 of the Ikata nuclear plant with the Hiroshima District Court. Hiroshima is located on the opposite side of the Inland Sea from Ehime Prefecture. On May 31, another group of local residents filed a similar application with the Matsuyama District Court in Ehime. In Oita Prefecture, situated on the opposite side of the Sea of Uwa from Ehime, another group of local residents launched the same legal action. If just one of the three courts grants the plaintiffs a temporary injunction, the operation of Unit 3 will be suspended. In the

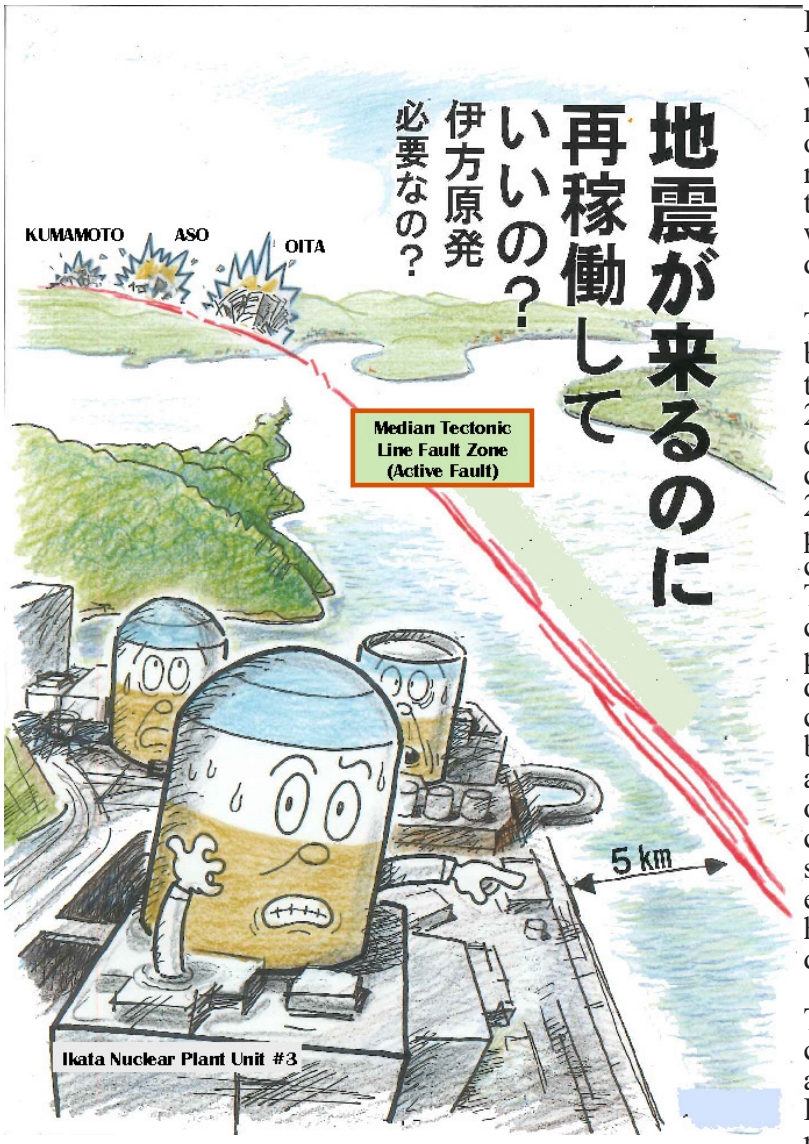

Illustration by Shoji Takagi: "Is it really OK to restart Ikata when earthquakes are coming closer and closer?"

case where all three courts reject the application, the plaintiffs are at liberty to appeal the case to higher courts. Another option for them is to file new applications for a temporary injunction in neighboring district courts.

As things stand now, it would be very risky for the utilities to spend enormous sums of money to renovate their plants in preparation for reactor restarts. As this writer mentioned in the lead article of NIT 173 (p.3), a growing number of courts are handing down rulings or decisions in favor of local residents and such decisions are becoming commonplace, and have come to be expected.

Meanwhile, it has become quite obvious that the suspension of nuclear plant operations causes neither blackouts nor fossil fuel price hikes. During the period between March 2012, one year after the 2011 nuclear disaster in Fukushima, and August 2016, the period when more than three nuclear reactors were operational was less than three months, and for 25 months of that period only one or two units were online. All reactors were offline for 26 months during that period. Despite this situation, there was no power-supply shortage at any time during the 54-month period.

The power-saving campaigns have also been scaled down year by year, and totally disappeared in the summer of 2016. Although the utilities advised their customers on a daily basis to set their air-conditioners at a room temperature below 28 degrees centigrade for the purpose of preventing heat strokes, the total power consumption did not increase this summer. The leveling-off in power consumption continued not because many nuclear power plants were shut down. It was due to the fact that Japan's total power consumption had already peaked 10 years before the Fukushima nuclear disaster, and since then we have seen no renewal of the high power consumption record. If consumers had stepped up their energy-saving efforts and had promoted the efficient use of power, there could possibly have been a sharper contraction of power demand.

The utilities have raised the power rates, citing the increased use of fossil fuels after their nuclear plants were shut down. However, they did not raise their power rates when the fossil fuel purchasing prices shot up earlier. They did not do so for fear of causing a contraction in domestic power demand. Currently, the demand is bound to shrink, even without the rate hikes. In view of this situation, the utilities have decided to resort to rate hikes by citing shutdowns of their nuclear plants as an excuse. This means that the power rates will not decline even if the utilities resume operation of their nuclear plants.

We plan to press the utilities to give up their plan to restart their nuclear power plants, and will strive to achieve our aim of legislating a total ban on nuclear power generation. Completing the departure from nuclear power generation earlier than Germany is no dream.

(Baku Nishio, Co-Director, CNIC)

Group Introduction

Beautiful Energy

by Jacinta Hin*

Beautiful Energy is a movement for peaceful energy born during the early days —the summer of 2012— of the Friday protest against the restart of nuclear plants in Japan. A group of foreign friends, long-term residents of Japan, who met and bonded at the weekly protests, realized that not being Japanese, they stood out. Sought out by the Japanese press, they often were photographed and interviewed. More importantly, they understood the opportunity: to represent a global voice against nuclear energy and to let protesters know that the world was watching and supporting them. In those days, the Friday protest attracted over 10,000 people each week, many of whom had never attended a demonstration in their life. People were angry and emotional. They felt both isolated from and guilty towards the world about the Fukushima nuclear disaster.

We began to bring more foreign friends to the protest, and bilingual banners expressing our message of global solidarity. Then one day, one of us had the idea to bring candles to symbolize our stand: a positive message for a world that thrives on nuke-free, environmental-friendly energy (solar, wind and geothermal). We agreed and named our new movement Beautiful Energy, settling in a spot near the speech corner in front of the main gate of the Japanese parliament. Here we lighted our first candles one cold and dark Friday evening, October or November 2012. The exact date we have forgotten.

Four years and many Fridays later, we still light our candles every week and at the same place. Our core group has become bigger and is no longer exclusively foreign. Today we are an eclectic mix of nationalities, including Japanese. People of different ages, from student to retiree, homemaker, salarymen and working women. While our positive message and intentions have not changed, our candles have become a platform for how people want to express the reason for their involvement in the nuke-free movement. Thousands of people have passed by our candles. Hundreds of people have written personal messages on shades we put around the candles, which have the extra benefit of protecting them from wind, snow and rain. Every week, people around the world light Beautiful Energy candles from their homes. Every few months, we participate in the larger anti-nuclear demonstrations in Tokyo with our most colorful shades, stapled into one large banner, representing the many Beautiful Energy voices and messages. And every year, on March 11, we organize a global candle chain to commemorate the triple disaster of 3/11/11.

Photo by Isao Kimura

At the Friday protest, our spot has become a fixture and a place to rest and have a chat. During cold winter evenings, people warm their hands above the candles. Elderly people tell us that our candles give them a sense of peace and hope. A small gesture perhaps, but we feel our presence is meaningful; a grain of radiant sand in the global movement for a nuke-free world.

Why candles, you may wonder?
Candles are a universal symbol of life, love, and contemplation. When we light candles together, we feel united and at peace. They also represent light in the darkness of life: in the aftermath of the Fukushima nuclear disaster, we need hope and confidence that, together, we can create a better —nuke-free— future for our planet. Furthermore, the candle flame, being energy, is a symbol for safe, environmentally friendly and peaceful energy.

Beautiful Energy is open to anyone. We consider ourselves a non-political peace movement of heart-to-heart connection. Regardless of your unique way and language to express your stand for a nuke-free world —political, humanitarian, societal, spiritual, a mix or otherwise— you are always welcome to light a candle with us. In fact, we encourage you to do so. In person at our spot in front of the Japanese parliament on Friday, between 1830-20.00. Or remote at your home or elsewhere, wherever you are in the world.

Learn more about us here: https://www.facebook.com/groups/BeautifulEnergy/

* Beautiful Energy, Co-Founder

NEWS WATCH

Cabinet decides to scrap Monju

At a meeting on 21 September, the Cabinet decided to decomission the Monju fast breeder reactor. The Chief Cabinet Secretary announced at the end of the meeting that an expert panel will be set up to review the entire Monju project. It is expected to officially announce the decommisioning by the end of the year. The Cabinet decision comes after the Nuclear Regulation Authority declared last November that the Japan Atomic Energy Agency (JAEA) was unfit to manage Monju and demanding the the government find a new operator or scap the project. The government has been unable to find someone willing to take on the trouble-ridden project.

Despite Monju's demise, the Cabinet reaffirmed its committment to the nuclear fuel cycle. Monju was one of the main pillars of the nuclear fuel cycle, where plutonium reprocessed from spent fuel was to be used, but with the its failure, concerns will likely rise over Japan's plutonium stockpile, which amounts to nearly 50 tons.

Sendai NPP to Undergo Special Inspection

As reported in further detail in an article on page 8, Gov. Satoshi Mitazono of Kagoshima Prefecture, newly elected in the July 10th election, requested Kyushu Electric Power Co. on August 26 to shut down Sendai Nuclear Power Station (NPS) Units 1 and 2 (both PWR, 890 MW) for inspection and verification out of consideration of concerns by the prefecture's citizens resulting from the recent Kumamoto earthquakes. Kyushu Electric Power did not comply with the request for an immediate shutdown in its reply on September 5, but said it would conduct special inspections voluntarily along with the planned periodic inspections on October 6 for Unit 1 and December 16 for Unit 2. Dissatisfied with that, Gov. Mitazono repeated his request on the 7th, to which Kyushu Electric Power replied on the 9th that there would be no changes in its shutdown schedule, but that it would set up a full-time team in charge of all inspections and would go ahead with any of the special inspections that could be performed before the periodic inspections.

Kyushu Electric Power also informed Saga Prefecture, where the Genkai NPS is located, on September 6 that it would perform special inspections of Units 3 and 4 there (both PWR, 1180 MW), but has not decided yet when they would be performed. It was decided to decommission Genkai Unit 1 (PWR, 559 MW) on April 27, 2015, and regarding Unit 2 (also PWR, 559 MW), no request has been made for the inspection for compliance to the new standards toward restarting as of September 2016.

Vitrified Waste Departs from Britain

A total of 132 canisters of vitrified high-level radioactive waste departed from the Port of Barrow for Japan on September 1 to return Japan's portion of spent fuel that had been reprocessed at the Sellafield reprocessing plant in the UK. They are expected to reach Mutsuogawara Port in Rokkasho, Aomori Prefecture, in the latter half of October, and from there will be taken to the Japan Nuclear Fuel, Ltd. high-level radioactive waste storage management center in Rokkasho.

The number of canisters of waste that have been returned for storage from the La Hague reprocessing plant in France is 1310, and when the current shipment arrives, Japan will have received 520 of the 1000 canisters it is scheduled to receive from the UK (about 150 of the remainder scheduled for return contain low-level waste in accordance with agreed-upon radiologically equivalent substitution practices).

Hitachi-GE Developing Human Resources for Nuclear Power in Malaysia

Hitachi-GE Nuclear Energy, Ltd., came to an agreement with the National University of Malaysia (UKM) and Universiti Tenaga Nasional (UNITEN) on August 4 to implement a program for cultivating human resources in the field of nuclear power. They are also coordinating with Tokyo Institute of Technology, which has cooperative agreements with both universities.

Seminars led by lecturers from Hitachi-GE and Tokyo Institute of Technology are planned to be held at both universities for students majoring in nuclear power and researchers or other specialists at nuclear power-related institutes in Malaysia.

Japan-IAEA Joint 'Nuclear Energy Management School'

To foster young leadership, the IAEA has held a "Nuclear Energy Management School" annually or two to three times a year in Trieste, Italy and in other countries since 2010. In 2014, the IAEA also started organizing the School in Japan each year, hosted by Japanese organizations.

This year, it was held on July 11 to 27 at the University of Tokyo and the Wakasa Wan Energy Research Center in Tsuruga, Fukui Prefecture. The host institutions included the Nuclear Human Resource Development Network, JAEA, the University of Tokyo Nuclear Engineering and Management Department International Nuclear Specialization, JAIF, the JAIF International Cooperation Center and Wakasa Wan Energy Research Center, and the School was cosponsored by the IAEA. The trainees attending included 17 people from 13 countries abroad, mostly Asia, ranging in age from 27 to 43, and 15 Japanese from electric power companies, manufacturers, the JAEA and the Ministry of Defense, who ranged in age from 27 to 50. The courses included lectures, group work and facility tours, as well as an exchange meeting with high school students in Fukui Prefecture.

Hamaoka NPP Decommissioned Reactor Waste Planned for Outdoor Storage

It has been learned that of the waste materials resulting from the dismantling of Hamaoka NPP Units 1 (BWR, 540 MW) and 2 (BWR, 840 MW), which were decommissioned on January 30, 2009, there are about 8 tons with radioactivity below respective clearance levels for each waste category, thus exempted from being regulated as radioactive waste. The local Shizuoka Shimbun daily on July 15 reported that Chubu Electric Power Co. will try storing this waste outdoors temporarily. Waste with higher levels of radioactivity is being stored inside buildings at the plant.

New Company Established to Increase Parts Exports to China

The new company mentioned in the News Watch column of Issue 172 that was to expand nuclear power equipment and parts exports to China was established on July 20. The new company's name is International Nuclear Power Equipment and Components (NPEC), and for the present, it will work jointly with Hayan County and China National Nuclear Corp. (CNNC) in China as an export liaison. Furthermore, in the future, it has its sights on building a global nuclear supply chain data infrastructure, including for exports to countries other than China

On September 22, a rally against nukes and the war laws passed by the Abe government last year, was held in Yoyogi Park, Central Tokyo. Organisers estimated a turnout of 9,500 despite heavy rain. The placards read: 'Nuclear restarts-unforgivable' and 'Don't steal the homes of nuclear disaster victims.'

Photo by Ryohei Kataoka

Nuke Info Tokyo is a bi-monthly newsletter that aims to provide foreign friends with up-to-date information on the Japanese nuclear industry as well as on the movements against it. It is published in html and pdf versions on CNIC's English website: http://cnic.jp/english/

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