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Citizens' Nuclear Information Center

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3/11 Fund for Children with Thyroid Cancer launched

Purpose of the 3/11 Fund for Children with Thyroid Cancer

It is well known that a great amount of radioactive material was emitted from Tokyo Electric Power Co.'s Fukushima Daiichi Nuclear Power Station after the disastrous accident on March 11, 2011, and spread extensively beyond prefectural borders, contaminating wide areas. Despite this fact, the government is conducting thyroid-cancer screening only in Fukushima Prefecture.

The Prefectural Oversight Committee for the Fukushima Health Management Survey (henceforth referred to as 'oversight committee') reported at its meeting on September 14, 2016 that a total of 175 children had been diagnosed with or were suspected of having thyroid cancer, of whom 135 had undergone operations and were confirmed as having thyroid cancer. In other prefectures, local governments and citizens' groups are offering thyroid-cancer screening to residents independently. Some cases of cancer have been revealed.

The authorities, however, say they are detecting merely latent thyroid cancer that is not fatal and has a good prognosis, and claim that the causal relationship between the cancer and exposure to radiation is unlikely. Based on this view, they are now moving to downscale their screening system. Amid the rallying calls

for recovery and restoration in Fukushima, the thyroid-cancer patients in the prefecture are coming under strong pressure to conceal their sickness. Although the patients and their families are victims of the nuclear accident and should certainly be provided with free lifetime medical support and compensated, they are now isolated from society, and even from their local communities. They are suffering from both mental distress and financial difficulties caused by having to make frequent visits to hospitals and medical clinics.

To rectify this situation, a wide variety of continuing support for the patients is necessary. Essentially, this task should be done by the government because, in the first place, it was the government that pushed ahead with the policy of nuclear power generation and who must take responsibility for the consequences. The "Act Concerning the Promotion of Measures to Provide Living Support to the Victims, including the Children, who were Affected by the TEPCO Nuclear Accident, in Order to Protect and Support their Lives" stipulates that this is the task to be carried out by the government. Yet the central and prefectural governments are heading in the opposite direction.

Knowing the various difficulties facing the recipients of thyroid cancer operations and their families, and recognizing the fact that cases of

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thyroid cancer have been discovered in other prefectures as well, we began discussing what we could do to improve this situation.

As a result, we decided on a plan to seek donations both at home and abroad, and use the money to set up a fund for extending financial and other types of support to children with thyroid cancer and other disaster victims. The first meeting of the project was held on January 16, 2016. On February 15, we asked Akira Sugeno, the incumbent mayor of Matsumoto City in Nagano Prefecture in central Japan, to assume the post of special advisor. He is a medical doctor who was engaged for a long time in the treatment of thyroid cancer in Chernobyl in Ukraine.

Mayor Sugeno's lecture brings to light differences between the Japanese and Belarus governments in their approaches towards nuclear accident victims

On September 17, 2016, we held a symposium, at which Mayor Sugeno gave the keynote lecture, to celebrate the founding of the fund for children with thyroid cancer. The title of the lecture was "Long-term challenges on damage to human health by nuclear disasters -- 30 years after Chernobyl accident and five years after Fukushima."

According to Mayor Sugeno, the health damage caused by the Chernobyl accident was not limited to a high incidence of children's thyroid cancer. An unusually steep increase was observed in the cases of various physical abnormalities suffered by children living in areas of low-level radioactive contamination and in the children of exposed parents. Examples of such abnormalities include hematopoietic disorders such as anemia, allergic diseases, lack of concentration, and lower physical capacity. Similar reports have been released by the Ukrainian government.

In Belarus, Ukraine, and Russia, the Chernobyl law was legislated five years after the 1986 Chernobyl nuclear accident. The law stipulates that the annual radiation exposure limit for each citizen of the three republics is 1 millisievert (mSv), and the lifetime limit is 70 mSv, the same levels as those enforced before the accident. Based on this provision, the residents of the areas with an annual exposure of 1 mSv to 5 mSv were given the right to move out of the areas, and those living in areas with an annual exposure of 5mSv or higher were required to move out of the contaminated areas.

The people affected by the nuclear accident

are eligible for lifetime free-of-charge medical support. In Belarus, children living in contaminated areas are allowed to spend around one month in convalescent homes each year free of charge, the government providing this service on its own responsibility. Moreover, those aged between six and 17 are eligible for regular health check-ups twice a year.

A medical doctor in Belarus has asked Sugeno why the Japanese government has not launched this type of national project. For the people in Belarus, where the economic situation is far worse than that of Japan, it must have been unbelievable to hear that the Japanese government does not take measures to protect children's health. Mayor Sugeno said that he was hard put to reply.

On another occasion, a female pediatric doctor told him that it is necessary for each one of the citizens to learn more deeply about the negative effects of radiation and the ways to protect their health from radiation.

Japan's education and science ministry, other governmental agencies, and the Fukushima Prefectural government are spending huge amounts of public funds on the propagation of a radiation safety myth for school children, but the stark contrast between the Japanese government's stance and that of the three Russian republics made us feel profoundly depressed. It is quite certain that the Japanese children who are the targets of the radiation safety myth will grow up knowing nothing about the dangers of radiation and will not be on the alert against the effects of radiation. This kind of distorted education will increase the risk of children's exposure to radiation. How can we build a bright future for our country by mortgaging our children's health?

Why is the incidence of children's thyroid cancer high in Fukushima?

In Fukushima Prefecture, around 300,000 children aged 18 or younger received the first round of thyroid-cancer screening immediately after the 2011 nuclear disaster, of which 116 were diagnosed as having or suspected of having malignant tumors. 102 children underwent operations, and 101 were confirmed to have cancer. Since, under ordinary circumstances, no more than three children in a million suffer thyroid cancer, in the case of Fukushima children the incidence is several tens of times higher than usual, as admitted by the oversight committee in its interim report. The committee, however, claims that it is unlikely that the high



Mayor of Matsumoto City in Nagano Prefecture, Akira Sugeno, addresses the symposium



Ruiko Muto, (see NIT No.173) (left) and Hisako Sakiyama, (right) 3/11 Fund for Children with Thyroid Cancer Deputy Director Representative, and Director Representative respectively. Dr Sakiyama is also the author of this article

incidence of thyroid cancer was caused by the children's exposure to radiation, and attributes the high detection rate to advanced screening technology. This claim is taken to indicate that the sophisticated ultrasonic equipment used for the screening was of such high performance that many of the cases of thyroid cancer that were detected would have otherwise been left unnoticed throughout the children's lifetimes.

Around 270,000 children received the thyroid examination in the second round of screening. Of these, 59 were diagnosed as having or suspected of having malignant tumors, 34 undergoing operations which revealed that all of these children did, in fact, have cancer. If the committee's view that so many cases of thyroid cancer were discovered in the first round due to the screening effect, the second round of screening should not have discovered so many cases of cancer. It may be possible that a few cases that were overlooked in the first round were discovered in the second round, but the incidence in the second round was also several tens of times higher than usual. Nevertheless, the committee insists that the highly sophisticated screening contributed to the discovery of small cancers that did not require treatment. This must mean that the cancer operations conducted after the screenings were overtreatment.

Professor Shin-ichi Suzuki of Fukushima Medical University, who conducted the operations, contends that the operations were necessary and not overtreatment because the patients had invasions of cancer from the thyroid into surrounding tissues, and metastasis to lymph nodes and lungs. If this were overtreatment, how would the patients feel about the 'unnecessary' operations they have

undergone?

The 3/11 Thyroid Cancer Family Group published an open letter to the oversight committee chairman, Hokuto Hoshi, about six months ago, asking "What percentage of the operations or how many of them were unnecessary, and were there any cases of overtreatment and errors in the thyroid cancer treatment so far?" The group has yet to receive a reply from the oversight committee.

The committee maintains that a link between the increased incidence of thyroid cancer and the patients' exposure to radiation is inconceivable. The Q&A section of the 2010 Guidelines for Diagnosis of Thyroid Cancer by the Japan Thyroid Association (JTA), contains the question "What are the risk factors for the development of thyroid cancer?"⁽¹⁾ The answer to this question is that exposure to radiation at the age of 19 or younger is definitely a risk factor, and that some types of thyroid cancer have hereditary links. These comments are backed by high-quality evidence, says the guidelines. The answer also includes a comment that an increase in the patient's weight is another risk factor, but this is not substantiated by high-quality evidence. The answer then concludes that there are no other risk factors that have been scientifically verified under the current circumstances. Judging from JTA's answer, it would be natural to conclude that radiation exposure is the most likely cause of the numerous cases of thyroid cancer in Fukushima.

A paper that substantiates this view has recently been published. The authors pooled and reanalyzed data from 12 existing studies on relations between external radiation exposure and the incidence rate of thyroid cancer. As the

solid line in the chart indicates, thyroid cancer will develop even in a patient who has been exposed to radiation of 0.1Gy (100mSv) or less, and the cancer risk will increase linearly in proportion to the radiation-dose level. The paper says this therefore matches the linear non-threshold (LNT) model.”⁽²⁾

It is undeniable that the prognosis of thyroid cancer is better than that for other types of cancer. Thyroid cancer, however, does not undergo spontaneous regression, and there is a growing risk of its metastasis and invasion with time. The incidence of other types of cancer will increase gradually as the patient exceeds the age of 50. If children in their teens or twenties are diagnosed with cancer, they will need to concentrate their efforts on medical treatment during the time when they must tackle important life tasks, such as school and college entrance examinations, job hunting, marriage, and childbirth. Cancer will therefore exert a great influence on their life plans.

Rather than just being a matter of whether the prognosis is good or not, thyroid cancer should be seen as a very serious problem for the young people in question. In Japan, government officials and some experts are working hard to push up the screening rate of stomach, lung, and breast cancer using x-ray equipment without presenting any substantial evidence to prove that the screening will increase their survival rate.⁽³⁾

The same government officials and experts, however, insist that thyroid cancer screening is a disbenefit for people who were exposed to radiation from the Fukushima nuclear accident and are therefore at increased risk of developing thyroid cancer. This surely does not make any sense.

Conclusion

In Belarus, Ukraine, and Russia, the governments continue to provide the public with general health checkups, including screening for thyroid cancer, and to offer children living in radiation-contaminated areas the opportunity to spend around a month in convalescent homes each year at government cost. They are doing this as a national project even now, 30 years after the Chernobyl accident. This could easily be implemented by the Japanese government as well, if they had the will to do so.

To create a society where the projects for the protection of children's health are given top priority among other national projects, citizens must stand up and push the government to move in that direction. Until the government launches such a move, our fund will continue to support children suffering from radiation-induced illnesses. We would very much like to seek your cooperation in supporting this fund.

(Hisako Sakiyama, Director Representative, 3/11 Fund for Children with Thyroid Cancer)



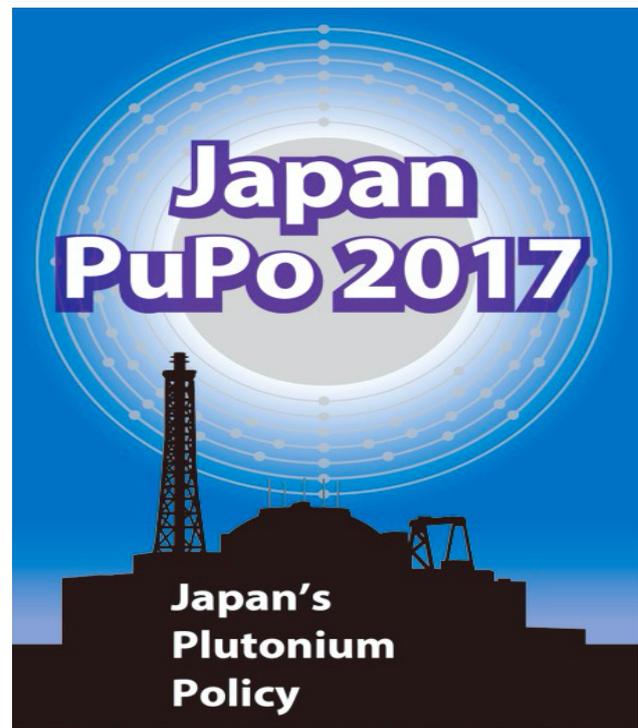
*People who supported the creation of the fund, including film director Jun Funabashi and actor/writer Atsuo Nakamura
(All photos by Kou Maizawa)*

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ANNOUNCEMENT

International Conference on US-Japan Nuclear Cooperation Agreement and Japan's Plutonium Policy 2017



CNIC, along with the US based group Union of Concerned Scientists, will jointly organise an international conference on 23-24 February next year at the United Nations University, Tokyo. It will focus on Japan's plutonium policy and the US-Japan 123 Agreement, which provides the basis for Japan's reprocessing program. The present Agreement came into effect in 1988 and is valid for 30 years. Thus it is due to expire in 2018. The Agreement is subject to automatic renewal unless either party (Japan or US) notifies that it would like to negotiate changes. While it is most likely that the Agreement will be automatically renewed in 2018, CNIC is planning to use this opportunity to draw attention to the serious problems with Japan's nuclear fuel cycle policy and the growing plutonium stockpile. US Nuclear Cooperation Agreements with most other countries do not allow reprocessing of spent fuel to extract plutonium because of the substantial risks to nuclear security. Plutonium is a vital ingredient in nuclear weapons, so it is usual for the US to restrict its production in its Nuclear Agreements. Yet the US-Japan Agreement makes an exception for Japan and allows it to reprocess spent fuel and extract plutonium.

The conference will focus on the many serious problems this creates. Japan's reprocessing policy is not simply about domestic energy issues. There are several international repercussions which must be taken into consideration. How do the countries in our region react to Japan's massive stockpile of plutonium? How do they see the planned Rokkasho Reprocessing Plant, which will produce a further 8 tons of plutonium per year? How do they feel about the US allowing only Japan, amongst non-nuclear weapon states, to reprocess? What is the real stance of the US on Japan's plutonium policy? By addressing these questions we hope to highlight the anxieties and instabilities that Japan's plutonium policy is causing at a regional and global level.

Domestically, the Japanese government has recently made clear that it plans to decommission the Monju fast breeder reactor, which was supposed to be one of the main recipients of Japan's reprocessed plutonium. Fast breeders, as their name suggests, are designed to 'breed' more plutonium and the government has decided that, at least from Monju it does not need any more plutonium. Yet the government has said that while it may abandon Monju, it is not abandoning the nuclear fuel cycle policy or the Rokkasho Reprocessing Plant. The contradictions are plainly evident and we hope that the conference will also make clear these domestic contradictions as well as explore political and economic alternatives to reprocessing, learning from international examples.

We are planning to include speakers from Korea, China and Taiwan as well as several US experts who will discuss the regional and global perspectives. We will also invite Japanese experts and government officials, both bureaucrats and members of parliament, as well as speakers from local communities in Aomori Prefecture, host of the Rokkasho Reprocessing Plant.

We hope that the international conference will be a major step in the campaign to stop reprocessing in the lead up to the US Japan Agreement expiry in July 2018. We plan to issue a statement after the conference and publish the major papers and discussions that take place, which will contribute to the ongoing campaign. We hope that as many people as possible will take this opportunity to find out more about Japan's plutonium problems and join us in the campaign to end reprocessing and close Rokkasho.

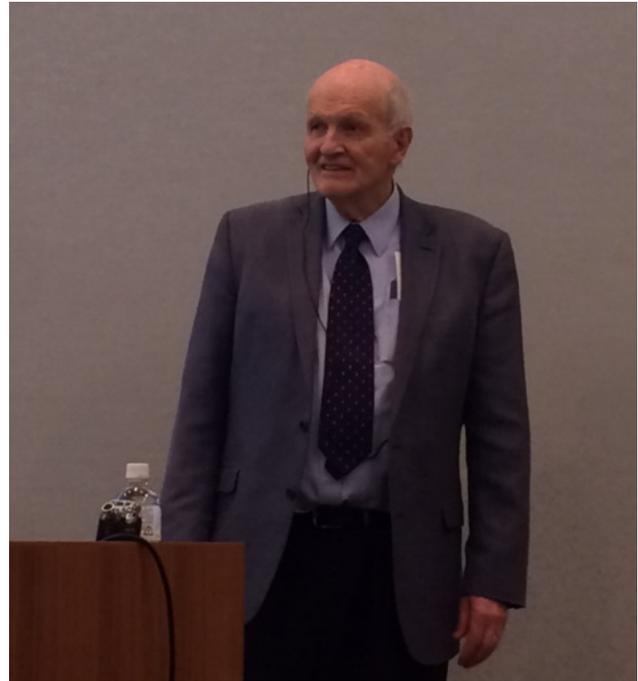
Japan's nuclear waste: Dangers and options

Report on two lectures by Prof. Frank von Hippel

Prof. Frank von Hippel, from Princeton University's Program on Science and Global Security, gave talks in Tokyo on 'Monju and Japan's reprocessing policy' and 'Reducing the danger of spent fuel pool fires' on November 21 and 22 respectively. The lecture on Monju was a pre-event for PuPo2017, the international conference that CNIC will be holding jointly with the Union of Concerned Scientists in Tokyo next February (see page 5 for details). The lecture on spent fuel pools was well attended by the media, especially because that very morning the coolant pumps at the Fukushima Dai-ni NPS Unit 3 spent fuel pool (SFP) had failed in a strong earthquake. Even though cooling systems were restored within two hours, this was a reminder for many in Japan of the narrowly avoided disaster of the Unit 4 SFP at Fukushima Dai-ichi NPS over five years ago.

Prof. von Hippel explained exactly how close to catastrophe we came in March 2011, and that the reason the Fukushima Dai-ichi Unit 4 SFP didn't catch fire was due to a fortunate coincidence that water was leaking into the pool from the adjacent reactor well. The water that TEPCO was adding via a 'giraffe cement pump' was inadequate to keep the spent fuel covered and within a month the rods would have been almost totally exposed, most certainly leading to a fire and a vast release of Cesium 137. The Unit 4 SFP contained 900 PBq (= Peta Becquerels, 1000 trillion disintegrations per second) compared to 700 PBq in the melted fuel of the reactors No. 1-3 and if there was a fire, up to 90% of this would have been released into the atmosphere (compared to only 1-3% of the cesium in the melted reactors). This would have required evacuation of 1.6 million people if the wind was blowing offshore and 35 million, including Tokyo, if the wind was blowing onto land. When we think of the ongoing disaster of Fukushima Dai-ichi, and realize that it could have been a hundred times worse even than what did happen, that we were 'saved' by a fluke water leak and that the fate of millions of people could depend on the wind direction, the extreme danger of SFPs becomes very apparent.

Prof. von Hippel's proposal is that fuel rods in SFPs be removed after five years and put in dry cask storage which are passively cooled by natural air circulation. While this is not without risk (the casks could be attacked by terrorists), the risks are considerably reduced compared to

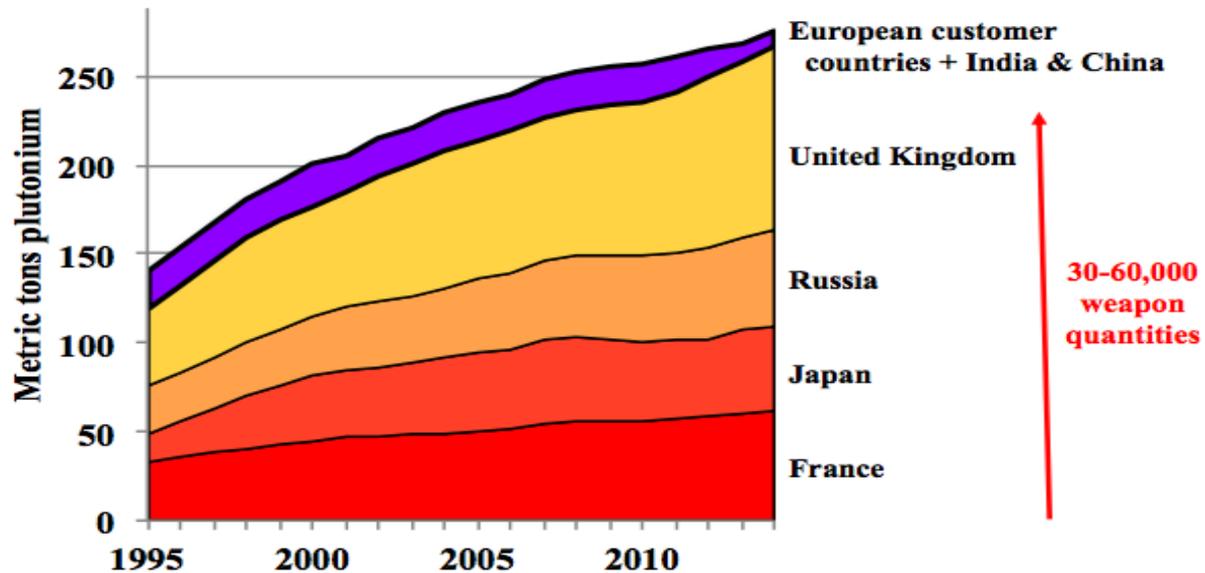


the present situation, especially considering the high-density racking which has been routinely adopted in SFPs in both the US and Japan. Low density open racking would allow some degree of air cooling if there is a loss of coolant in an emergency but high density racking packs the spent fuel rods so close together and surrounds them with neutron-absorbing partitions to prevent chain reactions, so air-cooling is not possible. Also the greater the number of fuel assemblies, the more hydrogen that would be produced by steam reactions with the hot fuel and the more likely a hydrogen explosion that would destroy the reactor building creating a situation in which cesium-137 from the burning fuel would be released directly into the atmosphere rather than plating out on the building walls.

Compared to the risks with this type of storage, dry cask is obviously much safer, but Prof. von Hippel explained to us that in the US, the Nuclear Regulatory Commission (NRC) in its cost-benefit analysis, systematically underestimated the economic impact and risk of a fire in a high density SFP by such means as assuming that decontamination in case of an accident would take less than a year, that the population relocation dose level would be three times higher than in Fukushima or Chernobyl and completely excluding terrorism risks. The

Growth of civilian plutonium stocks by country

Customer countries have stopped reprocessing and are using up their stocks. UK is ending its reprocessing program and puzzling over its disposal options. France and Russia continue to build up their stocks. Japan planning large-scale plutonium separation starting in 2018.



nuclear industry obviously does not want to pay for the added cost of either low density racking or extra dry casts, preferring to ignore the real risks, a story we are all too familiar with in Japan especially after Fukushima.

The dangers and high costs of reprocessing

On the other hand, in his lecture on Monju, Prof. von Hippel explained how the government in Japan continues to pursue its reprocessing program despite the enormous costs involved, the repeated technological failure of sodium-cooled reactors, as evidenced by the failure of 20 years of efforts to operate Monju and recent moves to close it, and the significant dangers of proliferation and terrorism from separated plutonium.

In the 1970s it was predicted around the world that plutonium breeder reactors would become the dominant source of electrical power globally and in the US would, by 2000s, have reached a capacity where they could have generated four times total US actual electrical power consumption. Of course at that time, the projected total electricity capacity was also greatly over-estimated, but the capacity of breeder reactors within the total, turned out to be spectacularly wrong. Monju is a very clear example of the technical problems that liquid sodium cooled reactors face: sodium, being flammable if it comes in contact with air or water, is not an easy coolant to work with, as the sodium fire accident in 1995 and then a refueling machine accident in 2010 show. While

the Japanese government has finally admitted that Monju is unworkable, they have not let go of the fast breeder dream and have come up with other arguments to justify the reprocessing program. These include the claim that the spent fuel waste is made less dangerous by separating out and fissioning the plutonium, and also that the amount of waste is reduced, but, as with the NRC analysis mentioned above, the authorities manipulate the data to justify their argument. Prof. von Hippel gave us detailed evidence (please see his slides on our website www.cnic.jp/english/?p=3592) that it is much more dangerous to separate out plutonium, creating more waste streams, than it is to simply dispose of it as high level radioactive waste in an underground repository. Not to mention the serious danger of the huge stockpile of plutonium which Japan has amassed, in terms of proliferation and terrorism threats.

Prof. von Hippel's talks gave us plenty of hard evidence with which to counter the various arguments put up by the nuclear industry and governments. We must make sure this information is used effectively to force changes in nuclear waste disposal policies.

(Caitlin Stronell, CNIC)

Planned Monju Decommissioning

~The Changed Future of Japan's Nuclear Fuel Cycle

The Japanese government has practically decided to decommission the Monju fast breeder reactor. Because the reactor has been positioned at the core of Japan's nuclear fuel cycle, its decommissioning will mark a significant change in nuclear policy, which was adopted more than 50 years ago.

Decision by the Ministerial Committee on Nuclear Power

On September 21, 2016, the Ministerial Committee on Nuclear Power, which consists of the Chief Cabinet Secretary, Minister of Economy, Trade and Industry and other relevant cabinet members, adopted a policy entitled "Procedure for Future Fast Reactor Development." This policy included a drastic review of Monju, including its decommissioning, but the continued promotion of the nuclear fuel cycle. Based on the adoption of this policy, the Fast Reactor Development Committee has been established under the initiative of the Minister of Economy, Trade and Industry. The new policy states that the committee is scheduled to reach a conclusion on future development before the end of 2016. However, the decision to decommission Monju will not be overturned by the committee. This is because "The committee will not discuss whether Monju should be continued or discontinued" (Toshio Kodama, President of the Japan Atomic Energy Agency). Thus the committee has been set up and will conduct deliberations on the premise that Monju will be decommissioned.

As of fiscal year 2015, national spending on Monju has reached 1.05 trillion yen since the start of its development. More than 840 billion yen is estimated to be required for the reactor to satisfy the regulatory standards, to restart operation, and to obtain results. (Of the estimation, 300 billion yen is decommissioning cost). If the restart of Monju were delayed, an additional 20 billion yen would be necessary every year. It would be too optimistic to regard the estimation as final. Delays in restarting Monju would be highly likely. The reasons include, to name a few, that the regulatory standards for a fast reactor (or fast neutron reactor) as a power-generating reactor have not been established and that it is doubtful that Monju could meet the seismic safety standards. When evaluated based on an earthquake ground motion of 760 gals, the displacement of its fuel assemblies by seismic motion was 40 mm, which is the largest acceptable displacement specified in the standards. The basic earthquake ground motion of the Mihama Nuclear Power Plant, which is four kilometers away from

Monju, was reviewed and determined to be 933 gals. If evaluated based on this degree of motion, Monju would fail to satisfy the standards. It is estimated that eight years would be required for Monju to meet the standards, but it is highly unlikely ever to attain that goal.

If Monju is decommissioned now, only decommissioning costs would be necessary and other costs would be saved. The decommissioning of Monju is a very reasonable conclusion that we at Citizens' Nuclear Information Center welcome.

Fast reactor development is headed for a dead end

The specific actions the Ministerial Committee on Nuclear Power plans to promote for the nuclear fuel cycle are to restart the experimental reactor Jōyō and to cooperate with fast reactor development in France. The fast reactor Jōyō was first started in 1977, and was operated as a non-breeding reactor after its breeding function was evaluated. Its operation has been suspended since an accident occurred in 2008. It is currently under investigation for compatibility with the new regulatory standards.

France plans to build a demonstration fast reactor named ASTRID (Advanced Sodium Technological Reactor for Industrial Demonstration). The cooperation between Japan and France began in 2014.

Pro-nuclear experts in Japan explain that the difference between a breeder reactor and a fast reactor is only whether or not the reactor has a breeding function and that if a fast reactor is developed, a breeder reactor can easily be developed. However, the French demonstration fast breeder reactor project, Superphénix, failed not because it was a breeder reactor but because the nuclear system using fast neutrons and sodium as coolant did not function well due to various problems including the volatile nature of the sodium coolant. It sounds too naive to believe that a fast reactor can be easily developed. The ASTRID project is still at the basic design stage and it has not yet been decided whether construction will go ahead or not. Koji Okamoto (Professor, Nuclear Professional School, University of Tokyo) who has been a strong advocate of nuclear energy in Japan, clearly states in an article contributed to



CNIC members stand in front of Monju (from right to left Baku Nishio (holding a photo of CNIC founder, Jinzaburo Takagi), Hideyuki Ban, Caitlin Stronell) In the sand is written 'Sayonara.' At the national rally to decommission Monju on 3 December, 2016 (Photo by Ryohei Kataoka, CNIC)

Energy Review, a Japanese industrial monthly, that the ASTRID project is close to coming off the tracks.

The new Japanese governmental policy states that one purpose of the ASTRID development is to lower the toxicity of radioactive wastes. However, a study (called the OMEGA Project) to reduce the toxicity of radioactive wastes has been ongoing for more than 30 years in Japan, resulting in no practical achievements. Presenting a new aim does not necessarily mean that practical achievements have become more obtainable.

The construction cost of ASTRID is estimated to be 570 billion yen, of which Japan has been asked to provide 290 billion yen, according to a media report. However, the construction cost is considered likely to increase, and if Japan continues to cooperate, it is certain that the cost shouldered by Japan will increase each time construction budgets are reviewed.

Even if cooperation with the French project results in some achievements, Japan has no way of taking advantage of them. After the Fukushima Dai-ichi NPS accident, the demonstration reactor project that would follow Monju has been shelved, and has, in fact, been returned to the drawing board, with even the site for construction as yet undetermined. Under such circumstances, it is unimaginable for an area of this country to accept the construction of a fast reactor, which is far more dangerous than a light-water reactor. If a fast reactor cannot be built, the achievements of the cooperation with France cannot be used. Japan's nuclear fuel cycle policy will, it seems, fade away in the not-too-distant future.

The policy change from a breeder reactor to a fast reactor

The reports and documents from the Ministerial Committee on Nuclear Power do not mention a breeder reactor at all; the focus of future development is not a breeder reactor but a fast reactor. This indicates that the Japanese nuclear policy, which was adopted in 1961 with the aim of developing a domestically-produced breeder reactor and which has been retained to date, is undergoing a drastic change. The change is understood to be a recognition that the technology of obtaining plutonium (through spent-fuel reprocessing) for use in a breeder reactor that is yet to be developed, is meaningless. Accordingly, it indicates that Japan's MOX fuel program, which uses plutonium fuel in regular reactors as a tentative measure taken until the completion of a breeder reactor, will collapse, because using MOX fuel, which is ten times more costly than uranium fuel, will become totally pointless.

METI has established the Reprocessing Implementation Act (May 2016), and created an authorized corporation, named the Spent Nuclear Fuel Reprocessing Organization, to provide a framework for the continuation of reprocessing even after the liberalization of the Japanese power supply market. This means that the continuation of spent fuel reprocessing remains unchanged as government policy. However, thanks to the cancellation of the development of the breeder reactor, Japan looks set to withdraw from the nuclear fuel cycle in the near future.

(Hideyuki Ban, CNIC Co-Director)

Who's Who

Masa Takubo: a prophet crying in the wilderness

by Philip White*

Masa Takubo is somewhat of a rarity in the Japanese anti-nuclear movement. He is a minority actor on several levels and, if you took into account all the ways in which he is a minority, he would probably be reduced to a minority of one. But that just means that his contribution is uniquely valuable.

First, he focuses equally on nuclear weapons issues and nuclear energy issues, taking a critical position on each. From my observation, Japanese critics of nuclear energy are invariably also critical of nuclear weapons, but as activists they tend to focus much more on the former. On the other hand, Japanese critics of nuclear weapons are divided on their attitudes to nuclear energy (more so before the Fukushima Daiichi nuclear accident) and, as a consequence, many have preferred to avoid the issue of nuclear energy, even if they were personally opposed to it. Masa Takubo, by contrast, is actively engaged on both nuclear energy and nuclear weapons issues. In that, despite being in the minority within the broader movement, he is in line with Gensuikin (Japan Congress against A- and H-Bombs), the organisation for which he is an official advisor.

Second, he is a pragmatist and a policy specialist. By choosing the path of the mind in a movement that tends to be led more by the heart, he often condemns himself to being like the voice of one crying in the wilderness. It is a lonely path for him, but it enables him to be an independent thinker and actor. As anyone who has tried to pressure him to conform against his will knows, he is one square peg that cannot be hammered into a round hole. But he is a voice bringing the movement's attention to key issues that too often it neglects.

Third, he brings an international perspective. His command of English and his connections with leading experts overseas enable him to shine a light on Japanese problems in a way that no solely domestic actor could do. These attributes also enable him to provide information about Japanese nuclear issues to the outside world, including through his membership of the International Panel on Fissile Materials. As a policy wonk, his analysis is always insightful and relevant. Foreigners living in Japan are very aware of the Japanese vulnerability to 'gaiatsu' (outside influence), so by offering astute insights for outside expert critics, Masa is increasing the pressure on the Japanese government.

For over a decade I have observed Masa's work. In that time I have seen him initiate numerous important campaigns, especially campaigns that crossed the boundaries of



nuclear energy and nuclear weapons, such as the campaign against nuclear trade with India and campaigns focused on Japan's nuclear fuel cycle and plutonium use policies.

One of his most significant campaigns focused on the Japanese government's obstructionist role in regard to adoption of a 'no first use' (or more precisely a 'sole purpose') nuclear weapons policy. The timing of the campaign (beginning in 2009) was fortuitous in that it coincided with the initiation of the Japanese/Australian-led International Commission on Nuclear Non-proliferation and Disarmament (ICNND), the commencement of the US government's Nuclear Posture Review (NPR), and the advent of a new Japanese government led by the Democratic Party of Japan (DPJ).

When Japanese nuclear abolitionists got together to consider their response to the recently established ICNND, Masa drew to their attention the importance of a 'no first use' (NFU) or 'sole purpose' posture. The Japanese nuclear abolition movement had not focused much attention on this issue. It did not gel well in the minds of some with the idealistic vision of total abolition, because it seemed to countenance the use of nuclear weapons in some circumstances.

From Masa's pragmatic perspective, however, it was an essential first step if progress towards nuclear disarmament was to be achieved.

Meanwhile, the Japanese government had for years opposed NFU or 'sole purpose' because it perceived that it would weaken its protection under the US nuclear umbrella. At a time when the US government was considering such a posture in its Nuclear Posture Review, objections by Japan were being used by nuclear hawks in the US to prevent such a policy being adopted.

Although for some it was a hard pill to swallow, when it was pointed out to members of the Japanese nuclear abolition movement that Japan was actually obstructing progress on nuclear disarmament, they agreed to support NFU and to lobby the ICNND and the Japanese government accordingly.

Under the unique constellation of circumstances mentioned above, Masa's policy analysis and direct lobbying of politicians produced remarkable results. He played a major role in getting over 200 members of the Japanese Diet to sign a letter to President Obama expressing, among other things, their 'desire that the United States immediately adopt a declaratory policy stating that the "sole purpose" of U.S. nuclear weapons is to deter others from using such weapons against the United States or U.S. allies'. This, along with a letter written by Foreign Minister Okada to Secretary of State Clinton and Secretary of Defense Gates, significantly reduced the force of

the arguments of those who claimed that Japan opposed adoption of a 'sole purpose' policy. It is a tragedy that after the demise of the DPJ-led government, the old guard reasserted control and, during the most recent NPR process, Japan was again accused of obstructionist tactics. Nevertheless, the letter from the Diet members and the comments of former Foreign Minister Okada are still relevant.

Apart from direct campaigning, Masa has his own website through which he provides detailed background and analysis of nuclear issues relevant to Japan. The Kakujoho site includes a comprehensive Japanese site (<<http://kakujoho.net>>) and a trimmed down English site (<<http://kakujoho.net/e/index.html>>).

* Philip White was international liaison officer and NIT editor for Citizens' Nuclear Information Center from 2004-2011.

NEWS WATCH

India and Japan sign Nuclear Cooperation Agreement

On November 11 in Tokyo, the India-Japan Nuclear Cooperation Agreement was signed, amidst loud protests outside the Japanese Diet, and in cities across India. For Japan, the only country to have suffered nuclear attack, this represents the abandoning of its fundamental policy of supporting the Non-Proliferation Treaty and working towards a world free of nuclear weapons. India is a nuclear-weapon state, having used 'peaceful purpose' nuclear materials provided by other countries to conduct nuclear tests in 1974 and 1998. Yet Japan signed the deal without even including a clause that would allow Japan to cease all nuclear cooperation if India broke its self-imposed moratorium and conducted another nuclear test. Instead, the agreement allows either party to terminate the agreement with one year's notice, a much weaker position for Japan. This deal had been eagerly awaited by global nuclear corporations, as they will now be able to access vital components available from Japan, and actually begin India's planned massive nuclear expansion. However, the people in India who will lose their land and livelihoods to these NPPs, and will also be exposed to safety risks, strongly decried the deal, calling it a 'disaster.'

Mihama Unit 3 Approved for 60 Years of Operation

Japan's Nuclear Regulation Authority (NRA) on November 16 approved an extension of the operating period of Kansai Electric Power's (KEPCO's) Mihama Unit 3 (PWR, 826 MW) to 60 years. Prior to that, on October 5, amendments to the reactor's license were approved, meeting the new regulatory standards, and on October 26, revisions in its construction plan were also approved.

Sendai Unit 1 Shut Down for Periodic Inspection

Kyushu Electric Company has refused requests from Governor Satoshi Mitazono of Kagoshima Prefecture, newly elected on July 10, to shut down Sendai Units 1 and 2 (both PWR, 890 MW), but from October 8, the Unit 1 reactor was shut down for its periodic inspection as scheduled. The "special checks" the company has proposed in response to the governor's request are being conducted concurrently. The reactor is planned to come back on line on December 11, with Unit 2 being shut down from December 16 for its periodic inspection.

Japan's 'PWR 4' Companies in Technical Cooperation

The four companies, Hokkaido Electric Power, KEPCO, Shikoku Electric Power and Kyushu Electric Power, that own pressurized water reactors (PWR) announced on October 19 that they had entered a technical cooperation agreement for improving the reactors' safety. Each company had been exchanging information with entities overseas on its own, on the basis of which they say they plan to share knowledge and knowhow.

There have also been reports that they may consider establishing a joint venture, but all four companies have denied this.

Vitrified HLW Returning from UK Arrives in Japan

The Pacific Grebe, laden with 132 canisters of vitrified high-level waste (HLW) being returned from the UK, arrived on October 20 in the port of Mutsu-Ogawa in Rokkasho-mura, Aomori Prefecture. The vitrified HLW was transported to Japan Nuclear Fuel, Ltd.'s (JNFL's) High-Level Radioactive Waste Storage Center, where unloading was completed on October 22.

This is the sixth shipment from the UK; all of the scheduled returns of radioactive waste from France have been completed.

Water Contaminated by Fukushima Nuclear Disaster Tops 1 Million Tons

The Fukushima-Minpo local daily of Fukushima Prefecture reported on October 24 that more than 83,000 tons of water had collected in buildings at the Fukushima Daiichi Nuclear Power Plant, with another approximately 917,000 tons being held in tanks. The amount of contaminated water is certain to increase in the future, with a shortage of tanks continuing.

Mitsubishi Heavy Industries Supporting Human Resource Development for Nuclear Power in Vietnam

Mitsubishi Heavy Industries is funding courses at two universities in Vietnam. In the current academic year, it held lectures spanning about three weeks during August to October at Vietnam's

Electric Power University. It has also initiated scholarship grants to students with excellent academic results to advance to Japanese graduate schools for study abroad. It is holding about two weeks of lectures during November at Hanoi University of Science and Technology. This contribution to the development of human resources in nuclear power is part of plans for Vietnam to purchase the ATMEA 1 medium-sized PWR reactor Mitsubishi Heavy Industries developed jointly with Areva of France.

A bill, however, was submitted to the National Assembly of Vietnam on November 11, seeking total retraction of all plans for nuclear power. It was adopted on November 22. The reasons given for this about-face include financial difficulties, with construction costs exceeding estimates, and concerns about radioactive waste.

Hitachi-GE Providing Technical Support to Researchers at Two British Universities

Hitachi-GE Nuclear Energy, a joint venture between Hitachi Ltd. of Japan and General Electric of America, announced on October 31 that an agreement had been reached with Imperial College London and Bangor University on technical support to their researchers. To implement the Wylfa B plan for constructing Britain's first BWR, the two universities established a BWR research network in June. The technical support being considered includes dispatching researchers from Hitachi to the network and providing internships for UK students in Japan.

Nuclear Reprocessing Organization Inaugurated

The Nuclear Reprocessing Organization of Japan was established on October 3 as a new spent fuel reprocessing venture. It is an organization authorized by the Minister of Economy, Trade and Industry under the Spent Nuclear Fuel Reprocessing Implementation Act, which was approved on May 11. Its operations are entrusted to the JNFL, funded by obligatory contributions from each electric power utility.

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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