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Citizens' Nuclear Information Center

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To our friends in the anti-nuclear
movement around the world



Participants in International MOX Assessment Interim Report Public Meeting, Kyoto, October 1996

In October 1987 the first issue of Nuke Info Tokyo (10 pages) was sent to our friends around the world - in all 300 individuals and organizations working to bring an end to nuclear energy. Since then, the newsletter has been produced every two months for the past 17 years, this one being the 100th edition.

The Chernobyl accident in 1986 showed clearly how radiation can spread far beyond national borders causing calamities on a huge scale. At the time, Japan's nuclear industry was trying to enter the international nuclear marketplace and export nuclear technology to China and other Asian countries. This was despite the fact that Japan imported all its uranium and depended on France and the UK to extract plutonium from its spent

fuel and then send it back to Japan. Unfortunately, the Japanese anti-nuclear movement wasn't putting enough effort into telling the world what was happening here nor into finding out what was happening overseas. One of the problems, of course, was the language barrier.

In the light of Chernobyl, the late Jinzaburo

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Takagi (at the time the Director of CNIC) recognized the urgent need to forge links with the international anti-nuclear movement. To that end the Nuke Info Publishing Committee was established and an English language newsletter was begun. The front page of the first issue contained a forward by Dr Takagi outlining the abovementioned circumstances. The other articles were as follows: Japanese nuclear industry / anti-nuke movement face turning points

Number of workers exposed to radiation increases

Anti nuke who's who (Yukio Kawakami)

Japanese government continues to promote waste dumping plan in the Pacific

Mitsubishi makes plans to export nuclear technology to Indonesia

Mitsubishi's radwaste causes serious concern in Malaysia

NEWS WATCH:

Illegal engineering at Takahama 1 accused by residents
JAEC announced long term plan

Public 'over-demand' blamed for massive power outage

No lessons learned from Chernobyl: government commission report

Despite some defects in the English, this gives a good picture of the situation in Japan at the time - the nature of the Japanese nuclear industry, the attitude of the government, the reality of worker exposure and the state of the anti-nuclear movement. One might be tempted to say that not much has changed.

One thing that has not changed is that over the past 17 years pro-nuclear forces have continued to promote nuclear power all over the world, while anti-nuclear movements have done their utmost to stymie them. In Japan we have had some successes that we can celebrate. For example, the Monju Fast Breeder Reactor has been out of action since 1995 and a recent Nagoya High Court decision invalidated the construction approval; approval for the Maki Nuclear Power Plant was withdrawn; all 17 of Tokyo Electric Power Company's reactors were closed down for some time due to a series of scandals; and workers' compensation has been approved for worker radiation exposure.

On the other hand, failing to draw lessons from the JCO criticality accident, the government is forging ahead with its plans for the spent fuel reprocessing facility at Rokkasho in Aomori Pre-

fecture. It is hoping to implement its pluthermal plan in an attempt to find a way out of the current impasse where it has over 38 tons of plutonium on its hands, but its arguments are unpersuasive. This scheme has to be stopped.

One significant effort specifically designed to stop this particular scheme was the International MOX Assessment project, led by Dr Takagi, in recognition of which he, together with Research Sub-Director Mycle Schneider, received the Right Livelihood Award in 1997. Major international collaborative efforts such as this have their place, as does the more mundane task of maintaining the regular channels of information exchange, but no one is likely to challenge the assertion that international links remain as important as ever. Jinzaburo Takagi's analysis back in 1986 remains valid today.

The more optimistic predictions might suggest that nuclear energy is on the way out in Europe and America. In Asia, however, governments are enthusiastically preparing for an expansion in nuclear power. Meanwhile, even more so than in 1987, Japan's nuclear industry is eager to be a part of the action. In order to defeat these moves, we wish to continue to exchange information and to act in solidarity with our friends overseas.

These days the internet is an extremely effective tool for information exchange. This is a big change from 17 years ago. We are currently updating our English web site and hope to make better use of this tool in future. However, we believe that printed publications like this are still an important form of information exchange, so we intend to continue to print and distribute Nuke Info Tokyo in future.

On the occasion of this 100th issue we would like to make a couple of requests. Firstly, if you have any comments, criticisms, or requests regarding this newsletter, please feel free to let us know. Secondly, in order to further improve our information exchange, we ask you to promote Nuke Info Tokyo among your friends and contacts. In principle we charge a subscription fee for this newsletter, but in the case of information exchange it is free.

Yukio Yamaguchi (CNIC Co-Director)

No to the Introduction of a Clearance Level

As is the case overseas, Japan too is looking to introduce a 'clearance level' for radioactive waste. Under this system radioactive waste with less than a certain concentration of radioactivity will be treated as 'waste which does not need to be treated as radioactive waste'. This move coincides with the commencement of the dismantling of a nuclear power plant - Tokai-1, which ceased operation in 1998. They say that the requirement for this 'clearance level' is international, but the details of the method and the levels for each nuclide are different for each country, so the claim that the requirement is international is without basis.

In Japan the Nuclear Safety Commission has already completed its deliberations about the clearance levels for light water reactors, gas reactors, heavy water reactors, and fast reactors, as well as the nature of the inspection and approval process. Consideration of the Spent Fuel Reprocessing Plant and the Fuel Fabrication Plant still remains.

In parallel with the Nuclear Safety Commission's deliberations, based on the issues that have already been considered, the Radioactive Waste Safety Subcommittee of the Nuclear and Industrial Safety Subcommittee of the Advisory Committee for Natural Resources and Energy is starting to consider the type of system that will be required. Their report is scheduled to be completed this summer, and it is expected that a Bill to amend The Regulation of Nuclear Reactors and Related Matters Act will be submitted to the Diet early in 2005.

The basis for the calculation of the clearance level is an annual radiation dose of 10 micro sieverts. A radioactivity concentration (clearance level) is determined for each nuclide, such that in one year the exposure dose from that nuclide will not exceed 10 micro sieverts, even if the huge amount of radioactive waste generated when a reactor is dismantled is reused as metal or concrete, or even if it is buried as industrial waste



cartoon by Shoji Takagi

and that land is then used for agriculture and so on.

However, more than one type of radioisotope might be contained within the waste, so they have to ensure that even if there are multiple radioisotopes, the overall radioactivity concentration doesn't exceed the clearance level. Having said that, the fact is that it is virtually impossible to measure the concentration of radioactivity of all the radioisotopes and then calculate from that the total radiation dose. They deal with this by selecting nine 'principal radionuclides' (C-14 is added for Fast Reactors and Ba-133 for Heavy Water Reactors. Also, where prior assessment of individual batches of waste indicates that other nuclides should be considered, these may be added too.) The 'standard concentration' for each nuclide (measured in becquerels per gram) is the concentration that would, on its own, result in a yearly dose of 10 micro sieverts. The percentage of this standard concentration that is present for each nuclide is assessed. As long as the sum of the percentages of all the nuclides is less than 100%, the waste is considered to satisfy the

clearance level*. In fact, however, they don't even measure all of the above nine radionuclides. Co-60 is adopted as the 'principal measurement radionuclide'. A ratio compared to Co-60 is then derived for each other nuclide by measuring a sample of the waste. The total concentration of radioactivity of Co-60 in the batch is then multiplied by this ratio to calculate the concentration of radioactivity for the other nuclides. Tritium is the exception in that the concentration of radioactivity measured in the sample is applied as is to the whole batch, without making any adjustment based on its relative concentration of radioactivity compared to Co-60.

For all nuclides other than tritium, the standard falls within the range set by the International Atomic Energy Agency (Table 1), but depending on the particular nuclide, the figure varies between these maximum and minimum values. As for the radiation exposure scenario, the Nuclear Safety Commission states proudly in its report that it made its own assumptions and carried out its own calculations 'based on the Japanese lifestyle and social environment'.

Data is gathered, in the case where the waste is used to make fry pans, in regard to the surface area of fry pans, the corrosion rate of iron and the hours per year spent cooking with fry pans. Where it is used for drink cans, data is gathered on the concentration of iron in the drink and the amount consumed per year. Then again, if it is used to make a bed, the data relates to the distance from the person sleeping on the bed and the hours per year spent using it. In the case where the waste is buried and the land then used for agriculture, the hours spent farming the land and the amount of produce consumed are assessed. Using this data, a calculation is made of the concentration of radioactivity that would, in the worst case, lead to a dose of 10 micro sieverts per year if the waste were to be reused or buried.

The figure chosen for some nuclides, such as tritium, is much stricter than the IAEA standard, but the calculation is based on numerous assump-

tions and the fact that different calculations lead to variations of several magnitudes just goes to show how unreliable this calculation is. Witness the interim report regarding the calculation (April 1998), in which the clearance level for tritium was given as 7 becquerels per gram, whereas the current figure is 200 (Table 1). And they say that these levels may be revised again in future.

Another huge problem is that no warning or labeling whatsoever will be provided regarding this 'waste that doesn't need to be treated as radioactive waste' to the workers engaged in recovering the metals, handling the solutions and then processing them into finished products, nor to the consumers of these recycled products. Furthermore, if some sort of accident were to occur, the question of the allocation of responsibility is completely unclear. In particular, where the waste is reused, the allocation of responsibility becomes even more problematic and the responsibility of the electric power company that produced the radioactive waste is totally obscured.

What about medical implements and children's toys? Is it really possible to take into account the possibility of multiple sources of radiation becoming mixed up and still keep the level within the regulatory limit? There's no way we can expect accurate measurement of the radioactivity of the huge quantities of waste involved. If they were to really carry out the measurements properly, the cost in terms of

Continued on page 9

Table 1: Major Radionuclide Clearance Levels (becquerels/gram)

Radionuclide	Clearance Level	IAEA Technical Document TECDOC-855
Tritium	200	1,000 - 10,000
Manganese 54	1	0.1 - 1
Cobalt 60	0.4	0.1 - 1
Strontium 90	1	1 - 10
Cesium 134	0.5	0.1 - 1
Cesium 137	1	0.1 - 1
Europium 152	0.4	0.1 - 1
Europium 154	0.4	-
all alpha-emitters	0.2	0.1 - 1 (Plutonium 239 and Americium 241)

Plan for New and Expanded Nuclear Power Plants Revised Down Once Again

In April the Ministry of Economy Trade and Industry's Agency for Natural Resources and Energy announced the 2004* Electric Power Supply Plan (EPS Plan). This plan brings together the electric power demand estimates and power plant development plans of Japan's ten electric power companies and the two major wholesale electric utilities.

Nuclear Power Development Plan

The Nuclear Power Development Plan (NPD Plan) is a subsection of the EPS Plan. In the 2004 NPD Plan the number of reactors expected to commence operations by 2010 was revised down from seven to six. Postponed to beyond 2010 was Fukushima I-8, representing 1,380 MW. The other 6 reactors were Tomari-3, Higashidoori-1 (Tohoku Electric), Fukushima I-7, Hamaoka-5 and Shika-2 and Shimane-3 representing a total of 7,503 MW (see table 1).

In regard to those reactors that are not currently under construction, as usual there were lots of postponements. This time, the start-up time was postponed from 1 to 3 years. For example, take Tokyo Electric Power Com-

Table 1: Nuclear Power Development Plan

Power Company	Location	Power (MW)	Commenced Construction	Commence Operations	Status
Hokkaido Electric	Tomari-3	912	Nov. 2003	Dec. 2009	Under Construction
Tohoku Electric	Higashidoori-1*	1,100	Dec. 1998	July 2005	Under Construction
	Namie Odaka	825	2010	2015	Postponed 1 year
	Higashidoori-2*	1,385	After 2010	After 2015	Postponed at least 3 years
TEPCO	Fukushima I-7	1,380	April 2006	Oct. 2010	Postponed 1 year
	Fukushima I-8	1,380	April 2006	Oct. 2011	Postponed 1 year
	Higashidoori-1*	1,385	2006	2012	Postponed 1 year
	Higashidoori-2*	1,385	After 2008	After 2014	Postponed at least 3 years
Chubu Electric	Hamaoka-5	1,380	March 1999	Jan. 2005	Under Construction
Hokuriku Electric	Shika-2	1,358	Aug. 1999	March 2006	Under Construction
Chugoku Electric	Shimane-3	1,373	March 2005	March 2011 (2010 bus. year)	Postponed 1 year
	Kaminoseki-1	1,373	2008	2013	Postponed 1 year
	Kaminoseki-2	1,373	2011	2016	Postponed 1 year
J-Power	Ohma	1,383	Aug. 2006	March 2012	Postponed approx. 2 years
Japan Atomic Power Company	Tsuruga-3	1,538	2007	2013	Postponed 2 years
	Tsuruga-4	1,538	2007	2014	Postponed 3 years
Total	16 Reactors	2106.8			

*Please note that the Tohoku Electric and TEPCO Higashidoori reactors are at different power plants. Both companies are building or plan to build power plants in Higashidoori. Very confusing!

according to the 1994 EPS Plan, it was going to begin operations in 2004. As a result of repeated delays it is now expected to start-up in 2012. Clearly the EPS Plan is premised first and foremost on construction and consumer convenience runs a poor second. Indeed, it makes no difference to demand whether an NPD Plan is produced or not.

The changes that have occurred over the past five NPD Plans are shown in Figure 1. It can be seen that each time a new NPD Plan is drawn up there is further slippage in the year that the reactors are planned to commence operation.

The big change from last year's NPD Plan is that Suzu Reactors 1 and 2 (1,350 MW each) and Maki-1 (825MW) have been cancelled and that the number of reactors has been reduced accordingly from 19 to 16. For 28 years Suzu was engulfed in a confrontation between the opponents and the proponents of the electric power companies' plan, but nothing of this, nor any sign of remorse, appears in the EPS Plan. Indeed at a press conference, in regard to the long struggle of the local citizens Kansai Electric Power Company President Yohsaku Fuji

even had the gall to say, "I am not familiar with the details of the matter". One would have thought that the power companies should reflect on their behavior and make a proper apology.

In the case of Tohoku Electric Power Company's Maki Nuclear Power Plant, it has been said that this is the first case in Japan where a power company has actually

ny's (TEPCO) Higashidoori-1. Ten years ago,

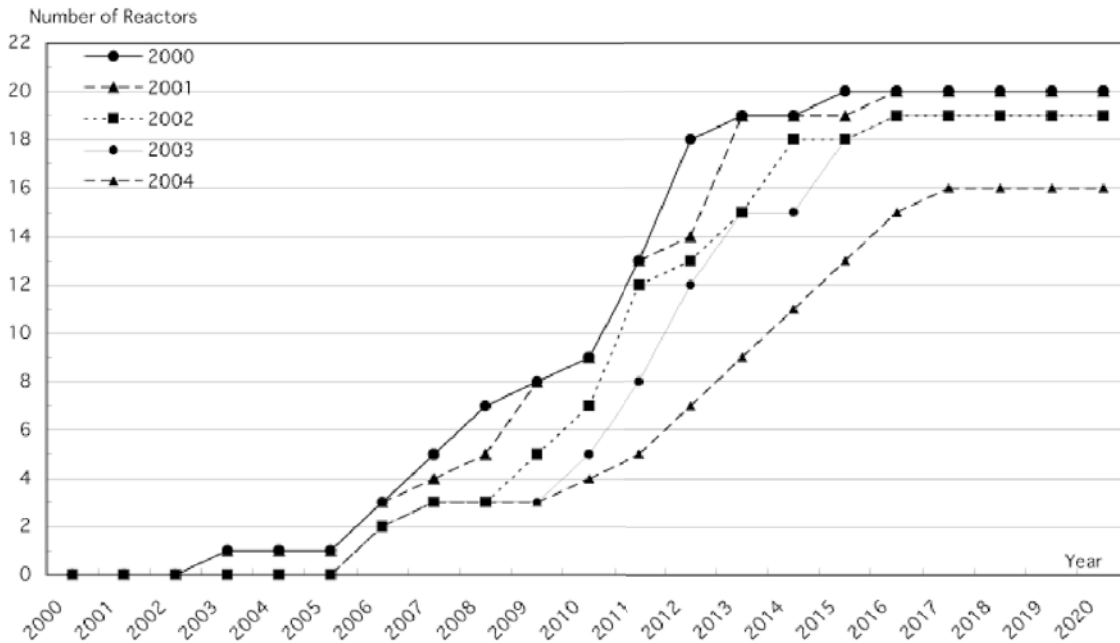


Figure 1: Changes in Nuclear Power Development Plan

photovoltaics and wind, which last year produced 4.4 billion kWh (0.5%), are planned to

withdrawn an application for a new power plant, but it's also worth noting that 30.5 billion yen had already been spent to purchase the land. One wonders whether they'll try to cut corners in regard to reactor safety etc as they look for management efficiencies to cover this investment.

One reactor is scheduled to begin operations this business year. Hamaoka-5 is scheduled to become operational in January 2005. However, opposition is growing and one can expect that the pros and cons of starting up the reactor will come under scrutiny.

Electric Power Supply Plan

The outlook for 2004 in the EPS Plan is for continued gradual economic recovery. Estimated demand for electric power is 840.7 billion kWh (an increase of 0.8% over last year) and estimated power supply is 196,700 MW** (an increase of 4.1% over last year). The long term plan covers the next ten years. In addition to the total existing power supply of 234,720 MW**, it includes 30 power plants under construction (21,410 MW) and 53 plants preparing to commence construction (32,880 MW). Last year the nuclear component of total power consumption was 238.9 billion kWh (25.5%***). According to the long term plan, this will reach 429.1 billion kWh (40.4%) in 2013.

By contrast, new energy sources, such as

increase to just 6.7 billion kWh (0.6%). The document states, "The steady development and introduction of domestically produced energy sources such as traditional hydro [as opposed to pumped hydro - ed.] and new energy sources, will also be promoted." Clearly, however, they aren't serious about promoting new energy sources.

Conclusion

Plans such as this, which have been decided by vested interest groups, are invariably over-estimates which ignore reality. However, it is the people who bear the brunt when the plans fail. It's strange that the Agency for Natural Resources and Energy doesn't honor its public duty to reflect on its past mistakes. As long as it doesn't do so, we can expect it to keep repeating these same mistakes.

Tadahiro Katsuta (CNIC)

*Throughout this article years refer to business years, which in Japan are from 1st April to 31st March.

**The figure for current capacity in the long term plan is larger than the figure for 2004, because the former includes power plants that were not actually operational in 2004.

***This is much lower than the figure for previous years (around 33-35%), because TEPCO was forced to close all its nuclear plants after a series of scandals.

Japanese Power Companies' Pluthermal Plans: Recent Developments

Since around the end of 2003 there has been quite a lot of movement on the pluthermal* issue. This article is a report on these developments.

KEPCO

In September 2002 Kansai Electric Power Company (KEPCO) returned the MOX* fuel that it had intended to use in its Takahama-4 Reactor (PWR 870 MW, commenced operation in 1985) to the UK. This was because BNFL had falsified fuel fabrication quality control data. After returning the fuel, in October 2003 KEPCO submitted a revised plan to the Ministry of Economy Trade and Industry (METI), Fukui Prefecture and Takahama Town regarding quality control of MOX fuel procured from overseas. Since then it has been through a review process with the Nuclear and Industrial Safety Agency (NISA) regarding its revised quality assurance system. NISA gave its approval in February this year, and in March KEPCO received the consent of Fukui Prefecture and Takahama Town regarding fuel fabrication. It received prior consent to load MOX fuel in 1999.

Having obtained the relevant approvals, in March of this year KEPCO entered into a contract for the fabrication of MOX fuel with COGEMA of France. It intends to complete the fuel fabrication and load it in 2008. Citizens' groups have made representations to KEPCO and Fukui Prefecture demanding that KEPCO cancel its MOX plan.

Kyushu Electric

At a meeting of its board of directors on 28th April this year Kyushu Electric Power Company (Kyushu Electric) adopted a policy to use MOX fuel in its Genkai-3 Reactor (PWR 1180 MW, commenced operation in 1994). It submitted notice regarding its policy and its intention to hold local explanatory meetings to the local and regional governments, Genkai

Town and Saga Prefecture. It will now proceed with the explanatory meetings and, at a time that it deems propitious, submit a formal application for prior approval of its pluthermal plan, based on a safety agreement, to the regional and local governments. It will also apply to the central government for permission to vary its nuclear reactor license to allow for the use of MOX fuel.

Kyushu Electric had previously said, "We will implement pluthermal by 2010 at one reactor at either Genkai or Sendai." This latest decision confirms what had already been rumored, namely that pluthermal would be implemented at Genkai-3. At one stage the media was putting the date at 2008, but Kyushu Electric says, "It would be difficult to implement pluthermal by 2008." The best guess at this stage would seem to be 2009.

As for the reason for choosing Genkai-3, Kyushu Electric says that this choice will enable it to load more fuel at once into a single reactor. For either Reactor No. 3 or 4, by replacing a quarter of the reactor core with MOX fuel, it would be possible to load a total of 48 fuel assemblies, more than for the other reactors owned by Kyushu Electric. Reactor No. 3 was preferred over No. 4 because of its greater working space.

Kyushu Electric has entered into contracts with the UK and France for the reprocessing of a total of 380 tons of spent fuel. Its officially published overseas plutonium stocks were 2.9 tons, as at the end of March this year.

Company President, Shingo Matsuo, says of the new policy, "This is our first attempt to implement pluthermal, so we have decided to announce our intentions in advance of submitting our request for prior approval. From now on we hope to adopt a wide range of approaches in an open process in order to gain public understanding for our plans." Governor Yasushi Furukawa of Saga Prefecture stated,

"Once the application for prior approval of the pluthermal plan is submitted, I hope the debate will proceed in an open and neutral fashion. The basis for a judgment about implementation of the plan will be whether or not the understanding of the local and surrounding councils and of the citizens of the Prefecture has been obtained."

Action against the pluthermal proposal began immediately. Representations against the plan were submitted and a signature campaign begun, centered around the Kyushu branch of the Network to Abandon Nuclear Energy and the Saga Peace Movement Center.

Shikoku Electric

On 10th May, the President of Shikoku Electric Power Company (Shikoku Electric), Jun Ohnishi, visited Ehime Prefecture Governor, Moriyuki Kato, to submit a request for prior approval to use MOX fuel in its Ikata-3 Reactor (PWR 890 MW, commenced operation in 1994). He also submitted a request for prior approval to Ikata Town. The relevant offices of Ehime Prefecture and Ikata Town will now consider the application and, if they give their approval, Shikoku Electric will apply to the central government for permission to vary its reactor license.

President Ohnishi said, "As we move steadily forward with our plan, gaining the understanding of the local people as we go along, we intend to place top priority on safety." Governor Kato said, "I hope the plan will be explained to the local citizens in an easy to understand manner and that investigations to confirm the safety of the plan will be thorough."

According to public announcements, Shikoku Electric's plan is to obtain prior approval and to apply for a variation of the reactor license this year, to carry out fuel fabrication and transport from 2006 and to implement the plan from 2010.

Of the 157 fuel assemblies in the reactor core, up to 40 assemblies, or about a quarter, will be MOX fuel. At first they would load no

more than 16 MOX assemblies, then gradually increase the number after that. They say they want to keep the average level of enrichment of the assemblies to no more than 4.1% and the burn-up rate to no more than 45,000 MWd/t.

Shikoku Electric's overseas reprocessing contracts are for a total of 232 tons and its overseas plutonium stocks are 1,600 kg.

On 11th May the local Ehime Farewell to Nuclear Energy Network handed Ehime Prefecture and Shikoku Electric a petition demanding that they cancel the MOX plan.

Current Status of Government's Pluthermal Plan

The government's pluthermal plan announced in 1997 is already in tatters. (Pluthermal was to be implemented in 12-16 reactors by 2010.) However, it appears that behind the recent developments lies the issue of grants to local governments. METI recently decided to provide generous subsidies to local governments that have accepted MOX fuel since 1st April this year. How generous?

(1) For 5 years from the year after a power company formally submits an application for prior approval, the local government would receive an extra 20 million yen per year. This is a particularly dirty approach, not taking as its starting point the local government's acceptance, but rather the power company's application. It is a brazen attempt to overcome any opposition by plying the local government with money.

(2) The basis for subsidies to local governments which host nuclear power plants is the quantity of power produced. Once power production using MOX fuel commences, for the purposes of calculating the subsidy the power produced will be multiplied by a factor of 3.

(3) Where the pluthermal spent fuel is stored on site, the subsidy allowed is twice that allowed for uranium fuel (800,000 yen per ton of spent pluthermal fuel).

TEPCO

Tokyo Electric Power Company's (TEPCO) main priority at the moment is to regain public

confidence, so now is not a good time for it to start talking about its pluthermal plans. A date for TEPCO's introduction of pluthermal wasn't even mentioned in the plan announced last December by the Federation of Electric Power. The issue of recovery of public confidence relates, of course, to the series of scandals surrounding TEPCO.

In a reply to the Fukushima Prefectural Assembly's General Investigations Committee, Governor Eisaku Satoh has already said that the pluthermal plan] has been withdrawn and he is not giving it any thought whatsoever. Again on 23rd March at his regular press conference, he made clear in a reply to a question from a reporter that he doesn't expect to approve the pluthermal plan "in the immediate or long term future".

Reprocessing Policy

In regard to reprocessing within Japan, it seems that at least the Atomic Energy Commission will change the current policy of reprocessing all spent fuel held within Japan. It looks like this change will be introduced in the revision of the Long Term Plan for the Development and Use of Nuclear Energy scheduled for 2005. Such a revision would bring the Plan in line with reality.

It seems, however, that they will still bring into operation the Rokkasho Reprocessing Plant, which is now nearing completion . With uranium tests at Rokkasho expected to begin at any time**, the argument in favor of canceling plans to make the plant operational is building up steam at last. Given the fact that there is no prospect of the Fast Breeder Reactor becoming operational, the pluthermal plan was to be a means of disposing of the plutonium extracted from Japanese spent fuel reprocessed overseas. However, if the Rokkasho Reprocessing Plant becomes operational, the plutonium from that too will be disposed of using pluthermal.

However, despite the abovementioned incentives for local governments to implement pluthermal, strong opposition all around the country will still make it hard for the utilities to

obtain local government approval.

Hideyuki Ban (CNIC Co-Director)

*The term 'pluthermal' refers to the use of plutonium in the form of mixed oxide fuel (MOX) in 'thermal' - as opposed to 'fast' - reactors.

**At the time this report was being written there were rumors that uranium tests would be postponed once again.

Continued from page 4 time and money would be astronomical. The recycled products made from the waste would become so expensive that no one would be willing to buy them. To avoid this situation, they would have no choice but to carry out only the most perfunctory tests in the minimum time possible, in order to reach the desired conclusion: 'within the regulatory limit'. And as explained above, only Co-60 will be measured.

The end result will be that suspicions will always remain about whether the regulatory standards have been met. Besides which, a dose of 10 micro sieverts isn't safe in the first place. But whether it is safe or not, they should abandon their plans to bury radioactive waste as ordinary industrial waste, or to reuse it in everyday goods.

Baku Nishio (CNIC Co-Director)

*For example, if the concentration of radioactivity for tritium is 50 Bq/g and the standard is 200 Bq/g, the concentration of tritium is 25% of the standard. The percentage for each of the other nuclides is calculated in the same way, and then all the percentages are totaled. To satisfy the clearance level the total must come to less than 100%.

Correction: In the last issue of NIT, in the first line of page 4, the date of President Bush's nuclear proliferation speech was given as 2nd November 2003. The date of the speech was actually 11th February 2004. Japanese months go by numbers, so you can perhaps work out that this is an easy translation error to make. (P.W. - editor and culprit)

Who's Who: Hironori Shinohara**Living true to himself****by Hiroaki Koide**

I met Hironori Shinohara when I entered the faculty of Nuclear Engineering in Tohoku University in 1968. At the time, while exhibitions showing the horror of the atomic bomb were being held all throughout Japan, the peaceful use of nuclear energy was being promoted as a great boon for the future of humankind. Japan's first nuclear reactor, Tokai-1, had just started operating and the light water reactors at Tsuruga and Mihama were going to be started up in 1970.

I chose my course with the intention of devoting my life to nuclear power. It was just at the beginning of the student protest movement, but I devoted myself to my studies. I also entered the mountain climbing club and enjoyed the quiet mountains of the Tohoku district*. Another member of that club from the nuclear engineering department, two years senior to me, was Hironori Shinohara. No doubt he too had come to that department full of dreams about nuclear energy.

As the student protest movement gathered momentum, outside the university plans for the Onagawa Nuclear Power Plant were progressing and the local people were beginning to campaign against it. The student protest movement challenged not only the social meaning of the study, but also the way of life of the student. Neither I, nor Hironori Shinohara were able to ignore the connections between society and the field of study that we were engaged in. Why did they choose remote areas for these 'absolutely safe' nuclear power plants, rather than build them in the city? To find the answer to this question, Hironori Shinohara and I began to study by ourselves about the safety of nuclear power. We also debated with our teachers about the connections between society and our field of study. Through our efforts, Hironori Shinohara and I discovered the reality of this nuclear power, in which, foolishly, we had invested our dreams and we came up against the university teachers, who, when their arguments were found to be bankrupt, justified themselves by saying, "I've got a wife and children to feed."

As a postgraduate student Hironori Shinohara was looked upon as a first rate researcher. He



was born the oldest son of the chief priest of the Shiogama-Jinja, an old and famous Shinto Shrine. But he was too proud to sell his soul for the sake of his livelihood. Even if it made life tough for him, the path he chose was one where he didn't have to make any excuses, where he could remain true to himself. He quit his postgraduate course and abandoned the field of nuclear energy. He became a construction worker and became deeply involved in the movement against the Onagawa Nuclear Power Plant. Over the last 30 years he has become a highly skilled steeplejack and is still at the center of the anti-nuclear movement.

To live a single-minded life may be difficult, but it is also beautiful. I feel fortunate to have met Hironori Shinohara. In the end we went our separate ways. I continued in the nuclear energy field, but ever since those days the big issue for me has been to live in such a way that I don't have to feel ashamed before him.

*The Tohoku district is in the north east of Honshu, the largest island in Japan.

Hironori Shinohara is a member of the Anti-Nuclear Winds of Miyagi Committee.

Hiroaki Koide is an instructor at Kyoto University Research Reactor Institute and a member of the Nuclear Safety Research Group.

NEWS WATCH

Rokkasho Reprocessing Plant Project Further Postponed

It was announced on 30th April that uranium tests at the Rokkasho reprocessing plant would be postponed until June. The tests had been scheduled to begin in April. On the same day the President of Japan Nuclear Fuel Limited (JNFL) stated that although the plant is currently scheduled to commence operations in July 2006, the schedule, including the possibility of postponement, is under consideration.

There have even been expressions of opposition to the plant from within the Liberal Democratic Party. House of Representatives member Taro Kono, a leading opponent within the LDP, wrote an article in the Asahi Shimbun newspaper on 15th April calling for the suspension of the reprocessing project.

Operational Trials Commence at Hamaoka 5

Hamaoka 5 (ABWR, 1,380 MW) is being constructed by Chubu Electric Power Company in Hamaoka Town, Shizuoka Prefecture. The reactor went critical for the first time on 23rd March, then on 30th April started generating and transmitting electricity with a power output ratio of 5 to 6 per cent. Chubu Electric plans to continue the trials, gradually increasing the output ratio, and to commence commercial operations in January 2005.

Spent-Fuel Storage Facility Developments

Tokyo Electric Power Company is planning the construction of a spent fuel interim storage facility (SFISF) in Mutsu City, Aomori Prefecture. On 18th February 2004 it officially approached Aomori Prefecture and Mutsu City to request their cooperation. Mutsu City, which has been trying to attract the facility all along, welcomed the request, but Aomori Prefecture so far has taken a cautious attitude. A big concern for the Prefecture is the fact that there is no foreseeable plan to

remove the fuel once it has been placed in storage.

On 14th November 2003, the Chamber of Commerce in Obama City, Fukui Prefecture submitted a proposal to the Chairperson of the City Council to invite a SFISF to their town. Since then a number of petitions, both for and against the proposal, have been presented to the Mayor and to the Council Chairperson and on 18th December a petition was submitted to the City Council demanding that it pass a resolution to invite the facility. Although the petition was adopted on 24th March 2004, the Mayor remains cautious. Meanwhile, both Fukui Prefecture and Kansai Electric Power Company have expressed their view that "the facility should be built outside Fukui Prefecture."

On 3rd March 2003 the Chairperson of the Gobo City Council in Wakayama Prefecture proposed an investigation into the possibility of inviting a SFISF. This move was aimed at seeking a source of revenue to replace revenue from the construction of a thermal power plant. This was because KEPCO's thermal power plant plan looked like falling through. However, there was strong opposition and a draft plan to set up a study meeting was never presented to the city council. A year later, on 19th March 2004, three Council Members introduced a motion for the establishment of a "special investigative committee on administrative and financial problems." The motion was passed and although one of the Council Members who had presented the proposal stated that he "did not have a nuclear fuel facility in mind", the headline in the local paper read, "nuclear fuel facility the biggest theme for investigation."

In 2004 there have also been moves to invite a SFISF to Nango Town, Miyazaki Prefecture. The 11th March meeting of the Full Council approved the Mayor's proposal to ask Kyushu Electric

Power Company to conduct a site feasibility study and on the 26th a timeline for officially submitting a request to Kyushu Electric was arranged. Responding to media reports about the matter, the local people and residents of neighboring municipalities immediately launched a campaign in opposition to the proposal and on 15th March the Town Council decided to suspend the plan. However, the Mayor has not given up on the idea.

In each case the interest shown by municipalities is not interest in what the storage facility actually is. The only thing they are interested in is how much money it will bring in. That's an indication of how pressed local municipalities are by the cutbacks in government grants and subsidies.

Still no Candidates for High-Level Waste Site

A year and a half has passed since the Nuclear Waste Management Organization of Japan (NUMO), the organization responsible for disposal of high-level radioactive waste, began in December 2002 to publicly seek candidate sites for the disposal of high-level waste. There have been signs that a few financially distressed municipalities might put up their hands, but as soon as the local residents and neighboring municipalities find out about it they rise in opposition, so an official candidate is yet to emerge.

On 21st April 2003 NUMO held an explanatory meeting for council staff and council members of Izumi Village Council, Fukui Prefecture, but on 30th April the department responsible within the Village Council stated that it would "not invite the facility."

On 8th December 2003 some people submitted a petition to the Saga Town Council in Kochi Prefecture requesting that an invitation be issued to site the facility in their municipality. On 29th January 2004 a meeting was held with some invit-

ed NUMO directors. At its March meeting the Town Council decided to carry the issue over to the next session. Then at a Prefectural Assembly meeting on 2nd March the Governor stated that he "rejected the plan".

At the 22nd March Council meeting in Goshonoura Town, Kumamoto Prefecture the Full Council requested the Mayor to submit an application, but the Mayor was cautious. There was strong opposition after the news was reported in the local paper on 5th April and on the 7th the Full Council decided to abandon the plan.

Japanese Government to sound out the idea of an Asian version of IEA

According to a report in an electricity industry journal, the Japanese government will sound out the idea of an Asian version of the International Energy Agency (IEA) at the FTA negotiations and APEC meetings. The gist is to make joint efforts in areas such as (1) building and improvement of oil stockpiling bases in the region; (2) lowering the level of dependence on the Middle East for crude oil imports by diversifying supplier countries; (3) reduction of environmental burden by increased use of natural gas; (4) mutual arrangements for supply of petroleum in times of emergency; and (5) expanded use of renewable energies.

On 30th April the Denki Shimbun (Electricity News) reported that, in addition to the above ideas, "this might become a business chance for the Japanese electric utility industry." The paper carried the headline, "Aim at the Huge Asian Market," suggesting a united government effort to sell Japanese energy efficiency technology for both nuclear and thermal power generation.

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