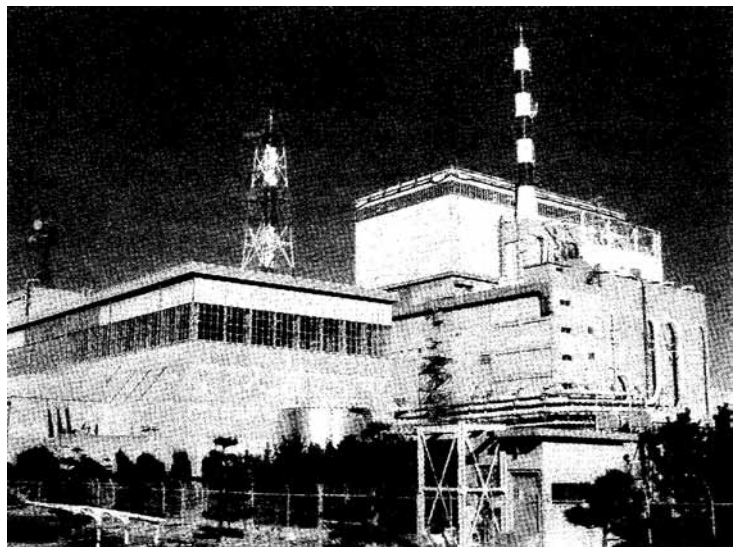




## Tokai I Shutdown for Decommissioning - Legacy of Difficulties Waiting Ahead

The Tokai I nuclear power plant ceased commercial operation on March 31, 1998 and will be decommissioned. It has run 277,752 hours since starting up in July 1966, and generated a total of about 29 billion kWh of electricity. While its availability factor was 77.5%, its utilization factor was about 63%, which is 10% lower than light water reactors (LWRs). During its 31-year history, the plant had 100 accidents and breakdowns of various magnitudes.

Tokai's reactor is a Calder Hall gas-cooled reactor (GCR), which uses natural uranium as fuel, graphite as the moderator, and carbon dioxide as the coolant. Because its fuel rod cladding is made of magnox alloy, it is commonly called magnox reactor. This type of reactor was introduced at Tokai because Japan's Atomic Energy Commission, formed in 1956, politically railroaded through the decision to bring in this type of reactor, which had just been developed in England, in an effort to get nuclear power started in Japan as soon as possible. Back then, the U.S. was still not putting much effort into developing power reactors, but Britain was working on



Tokai I Nuclear Power Plant Ceased Operation on March 31.

the Calder Hall reactor, whose purposes were generating electricity and producing plutonium.

Because this type of reactor uses gas for cooling, it is structurally large for its output. Its core was made by simply stacking up graphite blocks, therefore, providing seismic resistance was a matter of great importance when importing it into the earthquake-prone country of Japan. Although improvements were made by ways such as changing the shape of the graphic blocks and refining the way they are laid, the reactor was imported without any substantiation of its seismic resistance. Owing to the much higher construction costs boosted by making these changes, there were doubts about the reactor's economy from the outset.

Japan's decision to build LWRs from there on not only made Tokai I a unique type in this

### In this issue

Tokai Shutdown for Decommissioning 1-2; VHLW Arrives Rokkasho 3; Japan's HLW Disposal Plan 4-6; CNIC's Stance on Disposal 6; Japan's Plutonium Program for 1998 7-8; Opinion to Sellafield Public Consultation 8; Nuclear Developments in Asia - India, Pakistan 9; Anti-Nuke Who's Who - Kaoru Sakurai 10; News Watch 11-12

country, but also an unusual reactor that technologically led nowhere. This too perhaps resulted in mounting costs.

There were also many safety problems, one of which was the previously mentioned seismic resistance. Another was corrosion of the steel used for the system that seals the core, caused by the high-temperature carbon dioxide. To prevent this, Tokai operated under lowered temperature and decreased output. Third, owing to structural problems such as the lack of a container, the amount of gas radioactivity released was high. Other problems included the danger of graphite fires and the large tritium emissions.

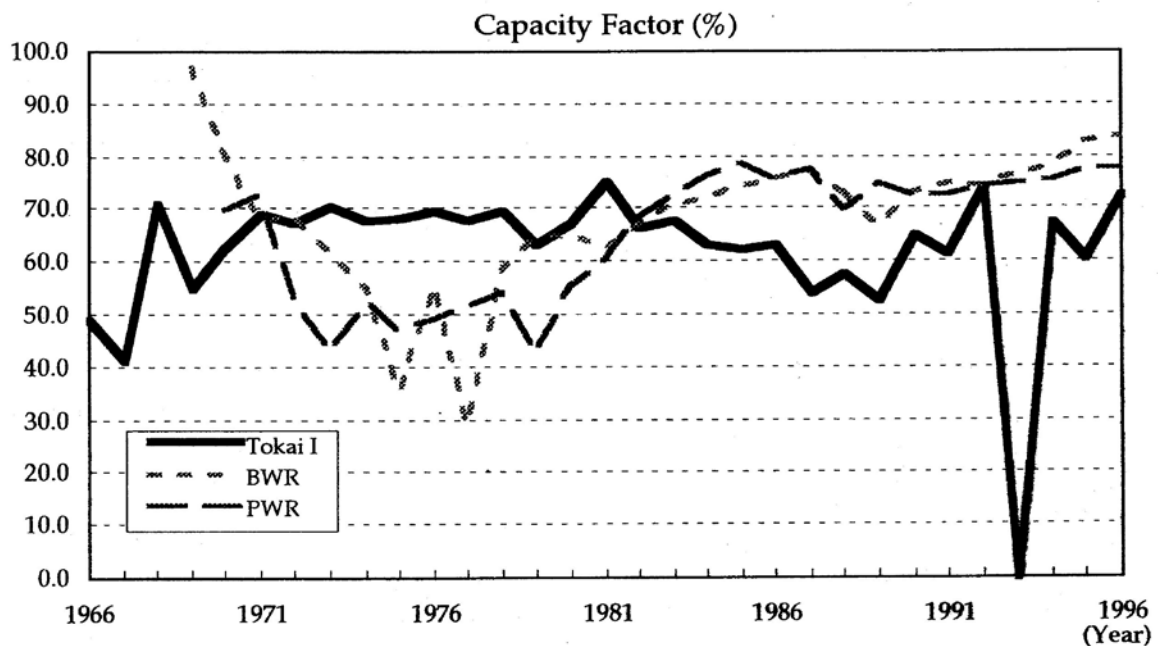
After Tokai is shut down, the operator will begin in May, the three-and-a-half-year job of sending the spent fuel to a reprocessing plant in Britain and decontaminating the equipments, while waiting for five to ten years until radiation has attenuated and dismantling begins. The work of dismantling and removal itself will take five to ten years, and according to news reports, the projected costs up to this stage is 25 billion yen. There is a great deal of uncertainty surrounding these costs, and when it comes to the issue of dismantled waste disposal, the outlook worsens still more.

According to an assessment by the Japan Atomic Power Company (JAPCO), dismantling will generate about 270,000 tons of wastes,

of which 12%, or about 32,000 tons, will be considered radioactive wastes. On the other hand, a model case in a report by the Nuclear Reactor Decommissioning Measures Subcommittee, under the Nuclear Power Committee of MITI's Advisory Committee on Energy, says that dismantling will produce 160,000 tons of wastes, of which 15%, or about 24,000 tons, will be radioactive wastes, showing a moderate difference.

These figures all assume the enforcement of the clearance level (if under this level, even wastes from a radiation controlled area do not have to be treated as radioactive wastes, but may instead be disposed along with ordinary industrial wastes), now under discussion. But on principal, a larger amount should be labeled radioactive and accorded safe treatment. There will also be a large amount of radioactive wastes such as graphite blocks and the activated wastes like the core and heat exchanger, whose contamination will exceed the levels used heretofore, such as the disposal level at the Rokkasho low-level underground disposal facility. However, no decisions have been made so far on how to deal with these problems. The Tokai I shutdown has created anticipation for more difficult problems.

-- by Chihiro Kamisawa



# VHLW Arrives Rokkasho

## Unloading Stalled for Three Days Due to Local Resistance

Operations to unload 60 glass logs of vitrified high level waste (VHLW) carried from France on board the British-flagged freighter Pacific Swan finally took place on March 13 at Mutsu-Ogawara port in Aomori Prefecture after being stalled for three days before the ship was finally given port-entry permission by Morio Kimura, Governor of Aomori. By the end of the day, the 60 logs contained in three casks were carried into the Japan Nuclear Fuel Ltd's (JNFL) Waste Management Facility (located at Rokkasho-mura where the reprocessing plant is currently under construction). It was the third shipment of VHLW from France deposited at the Facility.

When the ship arrived in Aomori on March 10 as announced in advance, Kimura refused to give permission for the ship to offload the logs on the grounds that Prime Minister Ryutaro Hashimoto had refused to meet with him to discuss the issue. Kimura had visited Tokyo on March 9 and requested a meeting with Hashimoto to discuss four requests, including the unresolved matter of locating a final repository site for high level waste outside Aomori by the end of the century.

Seeing how the Governor gave the green light for the ship to unload the deadly cargo on March 13, immediately after he was allowed to meet Hashimoto for only 5 minutes and followed by a handshake with the Prime Minister before TV cameras, many felt that the whole thing was a mere farce. Obviously, Kimura was unable to elicit from Hashimoto any more concrete words of confirmation regarding an out-of-Aomori siting for the final disposal facility than the words he obtained from the former head of the Science and Technology Agency (STA) Makiko Tanaka in April 1995 when the Governor had also refused port entry to the first HLW carrier for 24 hours and raised the same concerns. At that time, Tanaka's only reply was:

"Aomori will not be made the final disposal site without an agreement from the Governor."

Although Kimura's grandstanding was completely ridiculous, the refusal was supported by a majority of Aomori residents, who are seriously worried about the possibility that the HLW will remain permanently in Aomori, the result of not finding a repository site elsewhere. In Japan, discussion on how to proceed with the final disposal of high level waste has only begun (see column). Kimura's action highlighted anew the government's lack of a strategy in tackling the waste disposal issue.

### Non-Japanese Waste to be Included in Upcoming Shipments

In a recently publicized document of the Nuclear Safety Commission (NFS), CNIC discovered that vitrified waste to be returned from France in upcoming shipments will contain waste from the La Hague UP 2 plant. This indicates that vitrified waste arriving in Japan will also contain the reprocessing waste liquid of spent German MOX fuel and French Phoenix FBR fuel. The NFS and JNFL have acknowledged this, stating that change of actinide and other nuclide contents due to the inclusion of MOX and FBR spent fuel waste is insignificant in terms of radiation and heat.

It is puzzling that reprocessing at the UP2 plant was carried out in accordance with old reprocessing contracts which do not contain a "return clause" regarding waste. This surely indicates that Japanese utilities have no contractual duty to receive UP2 waste. If this is the case, Aomori is being forced to accept overseas waste. A situation going well outside present contractual requirements. There will be a follow-up on this issue in the near future.

-- by Jinzaburo Takagi

# Japan's HLW Disposal Plan

## Advisory Panel for HLW Disposal

In September 1995, the Advisory Panel for HLW Disposal was set up within the Atomic Energy Commission (AEC) to discuss fundamental ideas and thinking on the issue of the disposal of HLW in Japan. However, the first meeting of the Advisory Panel was not held until May 1996 due to the long time it took the AEC to select members of the panel. In July 1997, almost a year after the Advisory Panel was initially set up, it released the draft of its final report, and invited public opinion on the issue discussed during the period from August 1997 to January 1998. At the same time it held a series of symposia in five cities - Osaka, Sapporo, Sendai, Nagoya, and Fukuoka - inviting opinion leaders and representatives of local citizens' groups. At the last symposium, held in Tokyo in February this year, Jinzaburo Takagi, representative of CNIC was also invited to give his opinion (printed on page xxx).

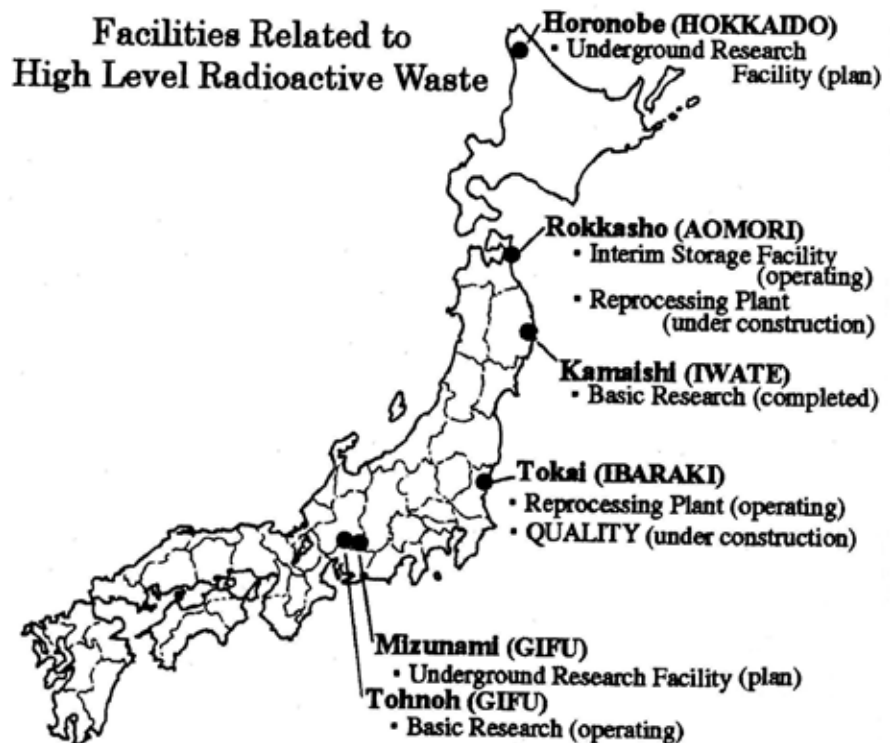
The Advisory Panel will evaluate the opinions it has received and rewrite its draft report, a procedure which is revolutionary in the history of Japanese nuclear administration. However, the original draft report adopted the basic contents of the Long Term Nuclear Utilization Plan that the AEC had proposed in June 1994, and it seems that the real purpose of gathering opinions from the public is to show public acceptance of their report. Whether or not the panel will turn out to be meaningful depends on how they deal with public opinion from now on.

According to the disposal schedule proposed

in the Long Term Plan, a body for executing the waste disposal plans is to be set up by the year 2000. The panel's report suggests that private enterprise could function in this role. The report further suggests that the actual time to begin disposal should be set at anywhere between the 2030s to the mid-2040s at the latest, as proposed in the Long Term Plan. However, this is merely a wish and unlikely to happen.

## HLW in Japan

The HLW for disposal is the vitrified liquid waste that is produced from spent fuel reprocessing. Reprocessing is being done at the plant owned by Power Reactor and Nuclear Fuel Development Corporation (PNC) in Tokai-Mura, Ibaraki Prefecture. In Rokkasho-mura of Aomori Prefecture, Japan Nuclear Fuel Ltd. (JNFL) is constructing a reprocessing plant for commercial use. Operation is supposed to start in January 2003, but will likely be postponed. At the Tokai plant, 513 cubic meters of liq-



uid waste have been stored as of March 1997. There are also 62 containers of vitrified wastes, each containing 120 liters of waste liquid.

Most of the spent fuel from Japanese nuclear reactors has been sent to reprocessing plants in UK and France. As much as 6,700 tonHM of spent fuel had been shipped to these two plants up until March 1998, among which 3,400 tonHM has already been reprocessed. The remaining amount on contract is 400 tonHM. VHLW from these two plants are shipped to the Interim Storage Facility owned by JNFL in Rokkasho-mura. As of March 1998, there have been three shipments of HLW brought in 128 170-liter containers. In the future, well over 3,000 containers are expected to be shipped in the future, and these numbers may even increase.

The plan is to store these containers in the Interim Storage Facility for 30 to 50 years, and then to send them to a final disposal site in the deep stratum of the earth between several hundred meters to 1,000 meters down. The AEC is not considering any other methods. This was one of the issues strongly criticized by concerned citizens who submitted their opinions to the Panel. As the final disposal site will likely be vigorously opposed by the local residents, extension of the interim storage period is anticipated. Rather than the method currently proposed by the AEC, the local citizens have expressed their preference for a definite long-term plan and system for VHLW storage.

### Underground Research Facility

There are two proposed sites for the Underground Research Facility where basic research on HLW disposal in the deep stratum will take place. One of the sites is in Horonobe, Hokkaido and the other one is in Mizunami, Gifu Prefecture. The stratum in the former site is sedimentary rocks and in the latter crystallized rocks. Mizunami is located adjacent to Tono uranium mine where various kinds of research have taken place. Besides these two sites, at the former iron mine in Kamaishi, Iwate Prefec-

ture, some research has been conducted using existing mine shafts. In Tokai-mura of Ibaraki Prefecture, construction of the Hot Experiment Facility started in January 1998.

These two planned Underground Research Facilities are going to be major projects with long mine shafts 1,000 meters deep. The local residents have expressed extreme anxiety over having such a disposal site nearby.

The Horonobe plan was unveiled in April 1984. In addition to the Underground Facility, an Interim Storage Facility for vitrified waste and a facility similar to QUALITY in Tokai were also proposed, so opposition was very intense. Although the Horonobe town council has voted for the proposal, the surrounding towns have voted against it. The Hokkaido council also voted against the plan in July 1990.

The Science and Technology Agency (STA) gave up the idea of building other facilities besides the Underground Research Facility in Horonobe. In February 1998, it submitted a revised proposal to the Hokkaido government for construction of only the Underground Research Facility. Local opposition has remained firm even against the underground facility, but there is still a possibility that some political pressure may be put on the town council to accept the plan. Since AEC made the proposal the second time without any discussion within the panel, CNIC issued a statement protesting the move.

Unlike Horonobe, the Mizunami plan was revealed relatively recently in August 1995. The Gifu Prefectural Government, Mizunami city, Toki city (neighboring city) and PNC tried to sign a construction agreement just one day after the announcement of the plan, but due to the quick emergence of the opposition movement, the agreement was not reached until December. Opposition is still strong and construction of roads to the planned site has been blocked.

In September 1997, PNC attempted to conduct investigations on the groundwater flow in

a large area around the Tono mine, but the local committee and Doki City Council asked PNC to stop. Investigations have been postponed in some areas. In Horonobe and in Mizunami as well, PNC (or the new organization created; see page xxx ) has the responsibility for con-

structing the Underground Research Facilities. Local residents' distrust toward PNC is quite strong, since PNC has not done anything to improve its image.

-- by Baku Nishio

## CNIC's Stance on HLW Disposal

Presented at Meeting of the Advisory Panel on HLW

Jinzaburo Takagi was invited along with 7 other people (3 experts and 4 from the public) to speak at a symposium sponsored by the AEC's Advisory Panel on High Level Waste Disposal held in Tokyo on February 24. The panel is currently reviewing its draft report entitled "Basic View on High Level Radioactive Final Disposal". Takagi presented CNIC's basic position regarding the issue. His presentation was supplemented briefly by his colleague, researcher Baku Nishio. Takagi's speech focused for the most part on how to begin and carry on fundamental discussion, rather than on how to proceed with disposal itself which would limit debate to matters such as construction of deep geological research facility and selection of a candidate site. His speech is briefly summarized below:

1. The government should provide a basic framework for discussion independent of its policy position that promotes the development of nuclear power and the interests of the nuclear industry. Current official discussions appear to be dedicated simply to "clearing away" for further discussion the waste problem in order to promote further nuclear energy.

2. Discuss all issues and questions from the very beginning, without establishing any premises or imposing any assumed requirements. Although the Panel has stated that this will be the initial discussion, the agenda for discussion is basically based on the 1994 AECJ long-term program for nuclear energy development. The long-term program has established a time-table for geological disposal of nuclear waste without any open discussions.

3. Electric Utilities generating high level waste should be responsible for the organizational entity implementing waste disposal. The Panel's original plan is to establish an entity for waste disposal by the year 2000, outside the direct responsibility of the utilities.

4. The draft report's idea of "symbiosis between local communities and the waste repository" is more than controversial.

## New Release

"Research Activities about the Radiological Consequences of the Chernobyl NPS Accident and Social Activities to Assist the Sufferers by the Accident," a report of an international collaborative work lead by Tetsuji Imanaka of Kyoto University's Research Reactor Institute was published in March.

Anyone interested in the report should write to:

Tetsuji Imanaka  
Kumatori-cho, Sen-nan-gun, Osaka 590-0494 JAPAN  
e-mail: imanaka@rri.kyoto-u.ac.jp

# Japan's Plutonium Program for 1998

As reported in previous issues of Nuke Info Tokyo, most nuclear industrial activities related to Japan's plutonium policy were stalled in 1996-1997 due mainly to accidents at central Power Reactor and Nuclear Fuel Development Corporation (PNC) facilities and subsequent revelations of attempted cover-ups. But in recent months - two years since the FBR Monju sodium leakage/fire accident, and one year since the fire/explosion accident at the LLW Bitumenization Facility of the Tokai Reprocessing Plant - the government and the electric utilities have been engaging in an all-out effort to restore Japan's plutonium program on all fronts. The year 1998 will therefore be a very crucial time in our fight against the government's plutonium policy. This is a report on some of the latest developments.

## PNC Reform Draft Bill Sent to Diet

On February 10, the so-called PNC reform draft bill was endorsed at a cabinet meeting and introduced immediately to the current Diet session. The government expects the bill to be enacted in October of this year.

The bill aims at replacing "Donen" (PNC) with a new entity tentatively called "Kakunenryo Saikuru Kaihatsu Kiko" (Nuclear Fuel Cycle Development Organization), which will engage in developing technology related to plutonium recycling ("nuclear fuel cycle") with a focus on FBR and high level radioactive waste disposal.

PNC has been in charge of practically all national nuclear R & D programs, which fall under the control of the Science and Technology Agency (STA), ranging from uranium mine exploitation, advanced thermal reactor (ATR), and FBR development, to reprocessing and HLW disposal research. The new entity is expected to withdraw from overseas uranium exploitation, uranium enrichment, ATR and commercial reprocessing, which will be handled exclusively by JNFL.

The new entity, which will be slimmed

down somewhat by eliminating outdated PNC projects like ATR, will thus take over the main projects related to Japan's plutonium program. This will be done virtually without any public discussion regarding justification of the projects. Although there will be some organizational changes, such as setting up a management council composed of members outside the organization, the main purpose of the bill is merely to replace the name Donen which has become extremely notorious throughout the country.

It is unlikely that the bill will pass the Diet without resistance. Many Japanese are not happy with the government's attempt to simply change the corporation's name, since two committees within STA responsible for investigating the two PNC accidents have so far failed to clearly identify the cause of the accidents. PNC reform should and can only be discussed after a full elucidation of the causes of the accident.

## KEPCO to Send Application on Relicensing Takahama 4 for MOX

Kansai Electric Power Company (KEPCO) is about to apply for re-licensing Takahama 4 and 4 (both PWR; 870 MW) for fueling MOX. On February 23 the company submitted a "request for preliminary consent" on MOX to be used first at Takahama 3 and then at unit 3. Both reactors are located in the town of Takahama, Fukui Prefecture. A month later, Riichi Imai, the mayor of Takahama Town, agreed to have KEPCO apply for relicensing. Although as of March 31, KEPCO has not yet filed the application, it is generally believed by local observers that Fukui Governor Yasuo Kurita will also go along with the request and that the application will be made soon.

Agreement on the application is, however, quite different from saying "yes" to the request of prior consent on the MOX program, and according to reports by the local newspapers, both heads of the local governments still

remain cautious about accepting the MOX program itself. The complex situation and the necessary procedures for implementing the MOX require some explanation.

While there are no explicit provisions for the decision-making process on re-licensing, it has been confirmed by the government and utility officials that the following steps to implement MOX burning in an existing reactor need to be taken.

1. Submission of a "request of preliminary consent" to local governments (relevant municipal and prefectural governments).
2. Agreement by local governments that the utility's apply for re-licensing to the central government.
3. Application to the central government for re-licensing of a reactor to use MOX as fuel.
4. Safety review and approval of the re-licensing by STA as well as by the Nuclear Safety Commission. This is the so-called "double checking" system. This step is generally believed to take about 1 year, but could be shorter.

5. Consent of local governments in reply to (1)
6. Shipment of MOX from Europe to Japan
7. MOX loading

Takahama 4 is therefore at the second stage. In Fukushima and Niigata where Tokyo Electric Power Company (TEPCO) is planning to implement its first MOX burning in BWRs, the utility has not yet submitted the "request of preliminary consent" to the local governments (step 1 in the above procedure). It was once believed that Fukushima I-3 would be the first reactor to be loaded with MOX, but Takahama 4 appears to be in the forefront now.

KEPCO says that there has been enough discussion in Fukui to get the understanding of local residents. However, this is completely without substance since the only discussion has been some pro-MOX publicity by the government and utilities. Fukui residents therefore, still have a lot to speak out on about their concerns and opposition.

-- by Jinzaburo Takagi

## CNIC Representative Jinzaburo Takagi Submitted His View to the Public Consultation on U.K.'s Sellafield MOX Plant on March 3. Let us share his conclusion:

It is recommendable that the UK government will not permit the operation of SMP. Scrapping the plant is a wiser choice for the UK from the economical and environmental aspects. Also, it is recommendable for the worldwide safety and security.

Now is a very crucial time for the world plutonium program. On the one hand, there seems to be no reasonable justifications for the nuclear industry anymore to maintain the costly plutonium program for reasons of energy security. On the other hand, many countries are motivated to reduce existing plutonium stockpile and may think MOX irradiation a practical option for disposition of military as well as civil surplus plutonium in spite of the bleak economic prospect, in order to get rid of plutonium surplus nightmare.

But if the big MOX plants such as MELOX and SMP once started full commercial operation, the plutonium industry would make desperate efforts to stimulate demands and not to make these plants idle. The resulting expansion of international plutonium trade would greatly threaten world security and safety.

I share the basic recommendation of the Royal Society that:

"The present lack of strategic direction for dealing with civil plutonium is disturbing. The Society urges the Government to commission a comprehensive review by independent experts of the options outlined above, covering technical, economic, environmental and security aspects, energy policy issues and taking account of public acceptability and of the opportunity."

To say the least, I urge the UK government not to take any further step in the licensing procedure of SMP before such a comprehensive review process is finished.



## Nuclear Developments in Asia - Part IV

## India and Pakistan

## -- Making Nuclear Weapons from Nuclear Energy

India has 10 nuclear power plants, but only eight are operating now because Rajasthan units 1 (CANDU, 100 MW) and 2 (CANDU, 200 MW) have been shut down for a long time. Its first commercial plants, Tarapur 1 and 2, began operating in 1969.

In May 1974, the Indian government conducted a "nuclear explosion test for peaceful purposes" using research reactor called Ciras at Pokaran in Rajasthan State. It obtained the plutonium by reprocessing spent fuel from a research reactor at an independently developed reprocessing plant. Because Ciras had begun operating in 1960 with Canadian assistance, Canada was shocked to find how it had been used, and suspended its nuclear power agreement with India four days after the test. Because India still did not join the Non-Proliferation Treaty (NPT) and did not accept reinforced assurance measures, Canada declared in 1976 that it would permanently halt the agreement, therefore, it is still inactive. The United States, which supplied the heavy water for Ciras, also stopped a 30-year contract to supply enriched uranium to the Tarapur plants. Later, in 1983, France's COGEMA signed a contract to supply enriched uranium to the Tarapur plants.

India has chosen to build reprocessing plants near each nuclear power plant site to process spent fuel. With the French cooperation the fast breeder reactor at Karpakkam (?) began operating in 1985, and India is also building a reprocessing plant for its spent fuel.

For the four plants currently under construction, operation starting dates are: November 1998 for Kaiga units 1 and 2 (PHWR, 220 MW), and November 1998 and May 1999 for Rajasthan units 3 and 4 (same specifications), respectively. India also plans to import two LWRs from Russia.

The country that became most concerned by India's 1974 nuclear test was Pakistan, which has a delicate relationship with India in terms of both geography and religion. Pakistan's first nuclear power plant was the Kanupp plant (CANDU, 137 MW), which started up in 1972. Due to effects from India's nuclear test, Pakistan became subject to stricter monitoring. And because Pakistan turned down the request for stricter inspec-

tions by Canada, which had provided the Karachi nuclear plant, assistance for fuel and supplementary equipment from Canada was cut off. Construction on the Chasnupp plant, Pakistan's second domestic reactor that had been announced in 1973, had been forced into an unavoidable pause. But in 1991, Pakistan made a deal to import a 325 MW PWR from China, and construction began in 1993 with the start of operation scheduled for 1999. Furthermore, in December 1996, the decision to have



China supply the second Chasnupp plant was made, but the problem of financing remains to be resolved.

Nuclear-generated electricity accounts for only 2% of the whole in India, and 1% in Pakistan. India's long-term nuclear power plan has gone nowhere but on paper because of funding difficulties, and Pakistan is groaning under the colossal onus of nuclear power costs. Both countries are on the frayed edge of world nuclear policy, whose main element has been the NPT system, as their nuclear power developments were pursued with military applications in mind.

Their nuclear power policies have been assisted by a succession various countries from around the world - a history that illustrates the nuclear weapon-related foreign policies of countries using nuclear power as a pretext for other purposes.

-- by Mika Ohbayashi

## Anti-Nuke Who's Who

## Kaoru Sakurai: Member of REXTA and Solar Net

It was on September 27 last year that Kaoru Sakurai received the good news by e-mail. The note read: "we have succeeded in assembling the 24W pv panel! It is real!" It was not only a mark of success for the people of Indonesia who had been working with Sakurai to develop their own solar-generated power, but a symbol of proof that anybody, anywhere on earth, can generate their own electricity from sunlight.

"It was like a vanguard of a possible turnaround from the present lifestyle," said Sakurai remembering the excitement. "Its like a breakthrough toward the beginning of a new social structure which will allow anyone to produce his or her own energy." Sakurai is one of the three members of Solar Net, a non-governmental organization (NGO) that provided the know-how for assembling a solar battery using materials available in Indonesia.

Solar Net was formed more than two years ago when the plan to export a nuclear power plant to Indonesia became apparent. Determined to prevent the introduction of nuclear power there by a way of suggesting naturally sound \*renewable, alternative energy sources\*, Sakurai and his colleagues joined hands with other environmental NGOs in Indonesia and formed the network.

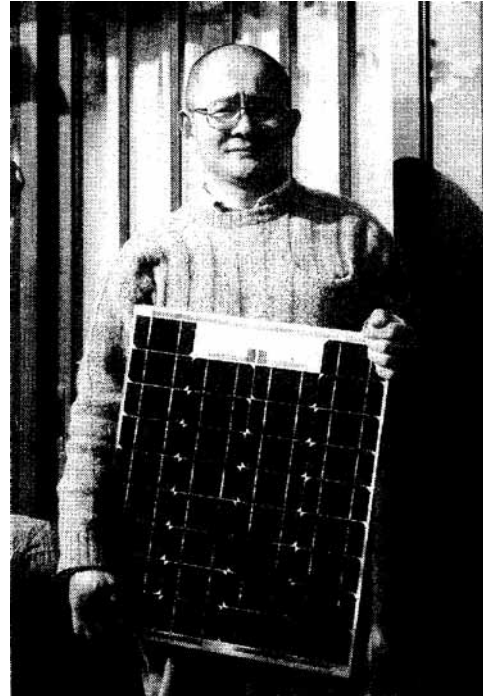
As a university student studying nuclear engineering, Sakurai remembers how a senior student living next door would come back after doing nuclear experiments, and he would hear the student groaning from nausea. "That made me feel certain that nuclear power was no good," he said. While getting involved in anti-nuke movements in his earlier days, he eventually came to realize that if he was going to continue opposing nuclear power, he also bore the responsibility

of offering alternative ways of generating electricity.

While developing expertise in solar energy, he joined a citizens' group which succeeded in getting the Ministry of International Trade and Industry (MITI) to set up a system for subsidizing installment of solar power systems. Until then, large companies did not even think about offering such systems for ordinary homes, but when the subsidy program was introduced, they began to tap the new market. In December 1994, Sakurai and his colleagues set up REXTA (Renewable Energy X Traders Association), an association of 15 companies that operate businesses involving renewable energy. As a member company, Sakurai's firm sells and installs solar batteries.

"We felt that if we left solar power in the hands of these big companies, it would end up becoming just like nuclear power and used merely as a kind of merchandise," he said. To Sakurai, nuclear power is not only a physically and environmentally dangerous source of energy, but is also a symbol of the present Japanese social system that is depriving ordinary citizens of their right to take control of their own lives and make their own decisions. His fight is not just a fight against nuclear power, but also the present Japanese social system where everything is controlled by the central government and business conglomerates.

His approach to achieving a world without nuclear power is to bring back energy generation and supply into the hands of ordinary citizens. "If people are able to produce their own energy and not leave it in the hands of the government or big power companies,



Kaoru Sakurai holding his home-made 24Wpv panel .

there would be no need for nuclear power," he said. "What's more, if for example, a local village can produce its own energy supply, it will be able to start up its own industry."

In the near future, Sakurai said he wants to work on starting a model industry in his local town - may it be agriculture or rice paper factory - where renewable energy such as solar or wind power is used as the energy source. And for activities outside Japan, he will work on setting up a fund in cooperation with various NGOs to establish a supply route where the materials needed to produce solar batteries will be supplied through the hands of ordinary citizens, and the know-how will be transferred by dispatching specialists from Japan.

- by Akiko Fukami

# NEWS WATCH

## Ohma Nuclear Plant Construction Plan Postponed Again for 9 Months

On February 18, the Electric Power Development Co. Ltd. (EPDC) reported to the Ohma Town Office and Town Council yet another change to the schedule for the construction of the Ohma Nuclear Plant (ABWR, 1383 MW). This would postpone the starting date of operations from October 2006 to July 2007. It was the 11th time that the company has had to announce a change in schedule.

Two fisheries cooperatives have been demanding additional compensation for the damages they will incur by the construction of the nuclear power plant. As well, a group of people opposing the construction own a small plot of land at the planned site, and they are refusing to sell. Considering these troubles, it is unlikely that this latest EPDC schedule change will be the last one we see and no doubt we can expect further postponements in the future. In Japan where construction plans of any kind are almost never officially given up, every year one sees similar postponements of nuclear power plant construction plans at other sites.

## New Shrouds at Fukushima I-3

Tokyo Electric Power Co. (TEPCO) on February 24 conducted the first shroud replacement in Japan at unit 3 of Fukushima I (BWR, 784 MW.) A shroud is a cylindrical partition measuring about 7 meters in height and about 4.5 meters in diameter and weighing about 34 tons. Used around the core of nuclear reactors, it holds the fuel assemblies and controls the flow of the coolant. The new shroud is made of SUS316L stainless steel which has replaced

the older SUS304 stainless steel, a type prone to cracks caused by stress corrosion. (See NIT #59 for detail.)

The installation required about 60 workers who, using a large-scale crane, lifted the shroud to a height equivalent to a 5-storied building. The whole process took about one-and-a-half hours. This is the first shroud replacement in Japan, and there are plans for shroud replacement at other BWRs throughout the country.

## NSC Issues Final Report on Monju Accident

The Nuclear Safety Commission (NSC) on February 26 issued a draft final report on its investigation of the Monju Accident, and is inviting opinions from the public for a one month period. The draft report basically supports the improvement measures submitted by the Power Reactor and Nuclear Fuel Development Co. (PNC) for the resumption of Monju operation. In Fukui Prefecture where Monju is located, the report is being strongly criticized by local residents as well as the mass media. Despite its responsibility for securing the full safety of nuclear facilities to the maximum level, the NSC report supports PNC in its rushed attempt to meet the conditions that will allow resumption of Monju operation as soon as possible.

## SG Replacement at Ikata I

Shikoku Electric Power Co. replaced the steam generators (SG) of its Ikata 1 (PWR, 566 MW). SG replacements have been made by Kansai Electric Power Co. (KEPCO) and Kyushu Electric Power Co. at a total of five

PWRs; however, the replacement at Ikata 1 was the first time a new method of drilling a hole in the ceiling of the containment vessel was used. It was also only the second time in the world that this method has been used. The first was the SG replacement at Ginna nuclear reactor (PWR, 490 MW) in the U. S. in 1996.

There are two SGs in Ikata 1, each weighing about 328 tons and measuring 21 meters in height. On February 16, the first old SG was taken to a storage facility, a process requiring three hours to lift it out of the containment vessel using a large-scale crane. The other was carried out on February 18. The new SGs were installed on February 24 and 26 respectively.

### Nuclear Industry Struggling to Survive in Asia

The 9th International Conference for Nuclear Cooperation in the Asian hosted by Japan's Atomic Energy Commission (AEC) was held on March 3 in Tokyo. The conference has been held annually in Japan since 1990, and this year the participating nations apart from Japan were: Indonesia, South Korea, Malaysia, the Philippines, Australia, China, and Vietnam. Among these countries, only Japan, China and South Korea have commercial reactors.

While the scope of "nuclear cooperation" covers not only nuclear plants but also research reactors, radio isotopes for medical use, etc., the discussion focused on "cooperation for nuclear policy." Asia is the last stronghold of

the declining nuclear industry, and some countries have powerful nuclear promotion programs. During this year's conference, however, participants reported that serious economic recession in the region has weakened the nuclear programs of these countries.

Indonesia, which in previous years had indicated strong plans to introduce nuclear reactors, did not mention any concrete time table for its plans. Even South Korea, which currently has the largest number of reactors under construction in the world, clearly stated that review of its nuclear policy is unavoidable.

It has now become apparent in Asia that aside from the problems of safety and radioactive waste, nuclear power is economically inefficient. This leaves only one way for the promotion of nuclear energy: using the rhetoric of the "prevention of global warming". Still, after the COP3 Kyoto Conference last year virtually ignored the existence of nuclear power and instead adopted a strong position encouraging energy saving technologies and the use of recyclable energy, the nuclear industry's rhetoric rings very hollow indeed.

This is an opportune moment for Japan to concentrate its efforts on sharing its energy-saving technology, which it believes to be second to none in the world. It is time for Japan to stop selling out-of-date nuclear technology to other Asian nations.

### SUBSCRIPTION

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. Please write to us for a subscription (subscription rates: Regular subscriber - \$30 or ¥ 3,000/year; supporting subscriber \$50 or ¥ 5,000 yen/year). The subscription fee should be remitted from a post office to our post office account No:00160-0-185799, HANGENPATU-NEWS. We would also appreciate receiving information and newsletters from groups abroad in exchange for this newsletter. (When sending the subscription fee from overseas, please send it by international postal money order.)

Citizens' Nuclear Information Center  
3F Kotobuki Bldg., 1-58-15 Higashi-nakano, Nakano-ku, Tokyo 164 Japan  
Tel: 81-3-5330-9520; Fax: 81-3-5330-9530