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Plutonium Conference A Great Success

Photographs by S.Kojima

The 3-day International Conference on Plutonium was a great success. 20 speakers from 9 countries came to give lectures on issues related to plutonium. More than 700 people including staff and volunteers took part in the Conference over the 3 day period.

The Conference was the first on this theme ever to be held by citizens' groups, and was ambitious in terms of its size and the level of the discussion. It was only made possible by the support of numerous people, groups,

funds and the tireless work of the volunteers.

The participants came from all over the country and had various backgrounds. There were specialist researchers in a number of different fields, local residents of nuclear facilities, some people with no knowledge of nuclear issues at all, and even some representatives of the nuclear industry. Since 'plutonium' issues are seen as obscure and distant by the Japanese public, it was a welcome surprise that so many people attended. The high turnout may have been due to the wide press coverage beforehand. In this sense the Conference was really open and not just a one-way affair.

The first day focused on the "Effects of Plutonium on Human Beings." We had invited Prof. Karl Morgan of USA as the keynote speaker for this opening session, but unfortunately he was unable to attend at the last minute for unavoidable reasons. The news was received just a week before the Conference, putting the organizers into a panic but we were able to invite Dr. Alice Stewart of UK.

Dr. Stewart made the keynote speech, on the effects of low-level radiation, concluding that there is no such thing as a 'safe' or 'effective' level of radiation, as is being asserted by the proponents of the nuclear industry. Dr. Stewart was followed by Dr. Helmut Hirsch and Dr. David Lowry, who reported on the plutonium policies of Germany and UK. Then came reports on the effects of the UK Sellafield reprocessing plant, and a speech by Dr. Evgeny Petryaev of Byelorussia on the plutonium contamination caused by the Chernobyl accident.

The theme for the second day was 'Plutonium Utilization Programs,' and the keynote was given by Dr. Thomas Cochran of USA. Dr. Takagi then reported on the Japanese plutonium utilization program and policy, and criticism of this policy and concerns over plutonium proliferation was given by Mr. Paul Leventhal and Mr. Ishibashi. Mr. Mycle Schneider talked on the French plutonium program, and Dr. Nils Morner of Sweden discussed the geological aspects of nuclear waste management. Reports and appeals were made by the Japanese people engaged in the legal battle against the Monju FBR and Rokkasho N-Cycle projects.

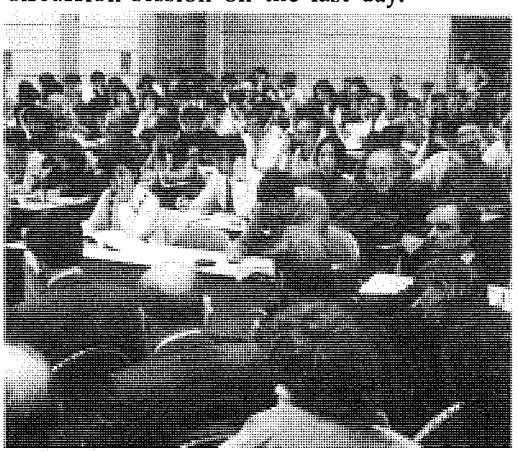
All the speakers criticized the plutonium utilization program as being uneconomical, dangerous, producing more hazardous waste and raising the threat of nuclear proliferation. Dr. Morner in particular stressed that there is no safe geological layer to accept and store radioactive waste, and the waste problem will only be aggravated as time goes on.

The theme for the third day was the transport of highly radioactive materials, and reports on the hazards and risks were given by Mr. John Large of UK, Mr. Damon Moglen from Greenpeace, and Manami Suzuki on the Japanese situation.

The conclusion was that plutonium and nuclear waste should not be moved under any circumstances. It should be stored in situ, controlled under an international safeguard system, and never separated.

On the whole, the Conference was successful in getting across the message that Japanese plutonium utilization policy is considered overseas as a grave nuclear proliferation threat, to a much greater extent than the Japanese people had imagined.

An appeal was adopted by all the delegates as seen on page 7, at the final discussion session on the last day.



Stop the Flow of N-Weapons Materials!

Dr. Thomas Cochran is the Director of the Nuclear Program of the Natural Resources Defense Council (NRDC). He participated in legal proceedings concerning the Clinch River Breeder Reactor as an expert witness on NRC licensing procedure.

His keynote address on the second day stressed how uneconomical and dangerous breeder reactor programs are.

To briefly summarize, countries with advanced nuclear programs have spent trillions of yen over a 45-year period trying to commercialize the fast breeder reactor. Yet today they are no closer to that goal than when they started.

The efforts made by France, Germany, the Soviet Union, UK and Japan clearly demonstrate that the plutonium fast breeder is uneconomical and will remain so for the foreseeable future. It is also apparent from India's program that plutonium fast breeder research & development can serve as an important stepping stone to nuclear weapons development or provide a readily available option for obtaining nuclear weapons material in the future.

From a reactor safety standpoint the plutonium fast breeder has to be considered one of the more dangerous reactor technologies. At the very least, the risks are not well understood. In certain accident scenarios the reactor can literally blow its top. The probability that these "on paper" scenarios may actually materialize is not known.

The development of a breeder economy will require the annual flow of tens to hundreds of tons of nuclear weapons-grade plutonium in the fuel cycle. For instance, the plutonium inventory needed to support a single commercial-sized plutonium breeder is 11-22 tons, about 1,300 to 2,800 bombs' worth. The proposed Rokkasho-mura reprocessing plant, with a capacity of 800 tons, would recover enough plutonium annually to construct about 900 nuclear weapons.

It is impossible to provide adequate physical security to prevent the diversion of a few kilograms of plutonium into illicit weapons purposes.

If Japan maintains its reprocessing and breeder development program as an energy option, it will establish an international precedent justifying the early acquisition of reprocessing capability by any country.

Non-nuclear weapons countries would always have the option of shifting their 'peaceful' nuclear programs to weapons programs.

In this regard, it is the unanimous opinion of the arms control communities that the issue is not the capability to design a nuclear device, which is the pacing consideration in a country's acquisition of a first weapon, but the availability of nuclear weapons materials which can be used for weapons purposes.

It is incomprehensible that Japan, the one country that has been subjected to a nuclear weapons attack, should decide to base its electric fuel supply on a technology requiring enormous stocks of material that can be used to manufacture nuclear weapons.

The Situation in Europe

Dr. Helmut Hirsch gave an overview of the reprocessing and nuclear waste situation in Germany. Germany was committed to reprocessing from the start of the German nuclear program. As early as 1971 a pilot reprocessing plant started operating at Karlsruhe. However, the plan to build a large reprocessing plant at Gorleben had to be cancelled because of strong resistance in the region. The new site of Wackersdorf was then chosen, in the more conservative region of Bavaria, and construction started in 1985. But this was also cancelled in April 1989 due to strong resistance not only in the region, but throughout Germany and in neighboring countries.

Spent fuel from Germany is now being reprocessed at La Hague and Sellafield and the utility companies hope to continue this arrangement. However, the German Federal Government is preparing a revision of the Atomic Law to give equal status to reprocessing and direct disposal. One reason for this shift is that direct disposal is very much cheaper than reprocessing. Another reason is that the Social Democratic Party (SPD) which governs the majority of German states today is strongly opposed to reprocessing and advocates direct disposal and the phasing out of nuclear power. The Federal Government has had to compromise with the SPD.

The enormous volume of radioactive waste created by reprocessing constitutes a serious problem for Germany. About 69,000 m^3 of radioactive wastes of all categories will result from reprocessing at La Hague by 2000 and about 7,700 m^3 from Sellafield by 2002. The return to Germany of the first waste category - vitrified high-level waste from La Hague - will begin in 1994 and other waste will follow, beginning at end of the 1990s.

Large volumes of waste, in a doubtful state of conditioning and with an undetermined radionuclide content, will have to be dealt with. So it is fair to say that in Germany the nuclear waste problem is to a large extent a problem of reprocessing waste.

Dr. David Lowry spoke on the political aspect of plutonium in the United Kingdom. The UK is a key country in the global production and management of plutonium, based on its 40 year accumulation of plutonium stocks and the interdependence

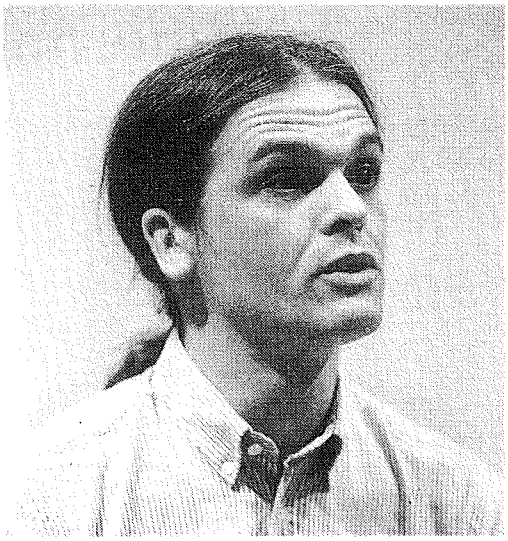
of the civil and military nuclear programmes.

The B-205 Magnox reprocessing plant at Windscale "co-reprocessed" spent fuel from civil reactors in the UK, Italy, and Japan with spent fuel from the UK's two unsafeguarded military Magnox plants at Calder Hall and at Chapel Cross. The plutonium separated out in this co-processing has been co-mingled and allocated pro-rata to the original owners. Thus the identity of each batch of plutonium has been lost.

The UK government has used Magnox-generated plutonium in its own nuclear warheads. It has also exported plutonium to the United States. Therefore, it is impossible for any politician or nuclear industry official to state with reassurances that no plutonium of Japanese origin has been put to military use.

Mr. Martin Forwood and Ms. Helen Kinghan described the severe contamination caused by the Sellafield reprocessing facility and the medical and social problems posed to local people. Mr. Forwood urged that the same mistake not be repeated in Rokkasho-mura and Ms. Kinghan asked the audience on behalf of a number of Irish people not to ship any more spent fuel to Sellafield from Japan.

Mycle Schneider introduced the French plutonium program. France used to have the most ambitious program in the world with the commercial FBR, Superphenix, and used to account for more than 80% of the



world's reprocessing. However, neither the program nor the nuclear program in general are working well.

Superphenix started operation in January, 1986, but has suffered numerous accidents and incidents. In almost five years of operation there have been only about five months of actual operation and the lifetime load factor is 7.35%. Superphenix is indeed the worst reactor in the world in terms of electricity production. There now seems to be no future for FBRs even in France.

The MOX program in France has so far been small. MOX fuel is used in only five LWRs out of fifty-four reactors and in these five reactors MOX accounts for only a small portion of the fuel assembly.

La Hague reprocesses spent fuel from France as well as from other countries. So far only 35% of the spent fuel reprocessed is of French origin. Even EDF, Electricite de France, plans to reprocess only a little less than half of the spent fuel from French reactors. Since Superphenix is not working and MOX does not have an assured future, it is very likely that France will slow down its own reprocessing program even further than it currently plans, otherwise it will end up with a large amount of plutonium on its shelves.

Pu Contamination by Chernobyl Accident

Dr. Evgeny Petryaev, a Doctor of Chemical Sciences and a Professor at the Byelorussian State University, has conducted research on the plutonium contamination caused by the Chernobyl accident. His study found that most of the plutonium was in the form of 'hot particles,' especially in the 45 km radius zone. 'Hot particles' are minute radioactive particles fragmented from uranium fuel by the explosion of the Chernobyl reactor, and include cesium, ruthenium and cerium as well as plutonium.

Dr. Petryaev's study analyzed more than 200 samples taken from the lungs of people in different areas who died of different causes and plutonium in the form of 'hot particles' was found in 50-70% of these samples.

However, the plutonium content of samples taken in 1990-91 had decreased to one tenth the level of those taken in 1987-88. Dr. Petryaev says this shows that the bulk of the particles penetrated human tissues in the spring and summer of 1986, correlating with the initial explosion, while there was much less intake from secondary dust transfer afterwards.

In soil samples, the hot particles were concentrated in the top 1 cm layer. The largest quantity of radionuclides was in the surface layer of the soil.

These hot particles are therefore likely to infiltrate human tissues through soil dust in the air and the local residents will be exposed to danger for many years to come. Even as far away as Mogilyov, 300 km from Chernobyl, the study detected 100 Ci of plutonium per square km, proving that the hot particles were dispersed over a far wider area than supposed. These particles will continue to contaminate people still living in these areas.

Dr. Petryaev concludes as follows: "The number of lung tissue samples found to contain radioactive particles still remains high (50-70% of samples tested). A study of the properties and pathological effect of radioactive particles on people living throughout the contaminated area is now urgently required, to evaluate the medical-biological consequences of radioactive contamination and determine what should be done to safeguard people and their productive activities throughout the contaminated region in the south of Byelorussia."

Dr. Petryaev commented that, since human beings have never before experienced a disaster like Chernobyl, the effects of plutonium contamination on the human organism is still unknown. Plutonium has so far only been found in lungs but in the future, it is likely to be found in bone marrow, brain and liver tissues as well, and is bound to cause further trouble of various kinds.

Speakers' Appeal from the International Conference on Plutonium

Omiya, Sonic City, November 2-4, 1991

As speakers at this International Conference on Plutonium, we came here from 9 countries in order to discuss the spectrum of issues related to the production and uses of plutonium. We have discussed plutonium in terms of: environmental contamination and health effects; the economics of its commercial use; the threat of its global commerce and transportation; and its role in fuelling ongoing nuclear proliferation and blocking efforts to bring about nuclear disarmament.

Having discussed these issues thoroughly, we have reached agreement on the following points:

1. As one of the most long-lived and radiotoxic elements, plutonium threatens the environment, human health and the gene pool.

2. The production of plutonium for weapons and its separation for commercial purposes has contaminated the environment and has exacerbated the nuclear waste problem.

3. There is no economic, technical or energy-need that justifies the use of plutonium as fuel in either Light Water Reactors or Fast Breeder Reactors.

4. Plutonium production for and use in nuclear weapons has been widely rejected; its use as reactor fuel should be rejected as well.

5. Plans for continued separation of plutonium will inevitably lead to nuclear weapons proliferation and global environmental contamination.

On the basis of these points of agreement, we call on the governments of Japan and all states with nuclear industries to adopt the following policies:

- No separation of plutonium
- No commercial or military use of plutonium
- No national stockpiling of plutonium
- No transport of plutonium

We urge Japan, as a recognized world leader in technology development, to provide leadership in adopting this program by renouncing its ambitious plans to separate, stockpile and utilize massive quantities of plutonium.

The international community must move to enact agreements banning plutonium separation and securing a safeguards regime which will oversee the safe and protected storage of all plutonium stockpiles. This should be a priority set for the 1995 Review Conference for the Nuclear Non-Proliferation Treaty (NPT) or whatever regime may replace that agreement.

Photographs by S.Kojima and S.Arakawa

Foreign Delegates Toured Japan

After the Conference seven of the twelve foreign delegates extended their stay and visited various parts of Japan. Rallies were held and the delegates gave lectures from the Northern island of Hokkaido to Southern Shikoku. These lecture tours were organized for people eager to learn about the plutonium issue but living too far from Omiya to attend the Conference.

Dr. David Lowry from UK and Ms. Helen Kinghan from Ireland toured three places in Hokkaido, while Mr. Mycle Schneider from France visited Rokkasho-mura and four other cities in Aomori prefecture and Morioka city in Iwate prefecture. Dr. John Large from UK visited Fukushima, Dr. Thomas Cochran from US visited Kyoto and Fukui, Prof. Nils-Axel Morner from Sweden visited Hiroshima, and Mr. Martin Forwood from UK visited Shikoku and several cities in the Western part of Japan.

In Tokyo a public rally was held on Nov. 9 with Dr. Cochran, Dr. Lowry, Ms. Kinghan and a musician from Sellafield, Mr. Paul Metsers.

In spite of the tight travelling schedule, all the speakers enjoyed the opportunity to meet with so many people in different parts of Japan. Everywhere turnouts were quite good.

Mr. Mycle Schneider and Dr. Takagi of CNIC gave speeches at rallies on reprocessing and HLW issue organized by anti-nuclear groups in three major cities in Aomori prefecture. Prior to the rally a "public hearing" on the reprocessing and HLW storage facilities sponsored by the Nuclear Safety Commission was held in Rokkasho-mura on October 30. This was nothing more than a ceremony to re-assure the people of Rokkasho-mura how safe the facilities would be. Even the local media described the hearing as incomplete and insufficient. Anti-nuclear groups did not participate since they knew they would not be given a chance to express their opinions.

Instead they organized rallies in three cities so that ordinary people could learn of the dangers of the nuclear fuel cycle facilities. At every rally more people showed up than the organizers expected.

These were really the first rallies since the bitter defeat of the February 3 gubernatorial election and the organizers were quite happy to see a number of new people in the audience.

In Fukui where Monju, a prototype FBR, is located as well as twelve reactors, Dr. Cochran told the audience Monju was not another reactor and warned that the plutonium used in Monju was the deadliest of materials and could easily be diverted into weapons use.

Dr. Cochran also met with prefectural officials, impressed on them the dangers of Monju, and asked them to set up a public debate in which ordinary people could express their opinions on the FBR. He promised to come back for it if he is invited.

In Hokkaido Ms. Kinghan delivered the audience a plea from a number of Irish people that Japan stop sending spent fuel to Sellafield. She then described how plutonium was dumped from the plant and contaminated the Irish Sea. Dr. Lowry explained the weapons aspect of plutonium and disclosed the fact that plutonium extracted from Japanese spent fuel at Sellafield could have been used in British and/or US nuclear weapons.

Overall, the rallies and lectures were successful everywhere and both organizers and foreign delegates found them worthwhile.

NEWS WATCH

PNC Asks for Uranium Conversion Experiment

The Power Reactor and Nuclear Fuel Development Corporation (PNC) on October 14 asked Okayama prefecture for permission to carry out an experiment to convert depleted uranium, recovered through reprocessing at Ningyotoge conversion plant, into uranium hexafluoride. It is reported that PNC plans to convert about 100 tons of uranium a year from fiscal 1992, processing about 360 tons of depleted uranium over a four-year period. The depleted uranium contains fission products and transuranium elements as well as uranium-232, whose daughter nuclides emit strong gamma radiation. Therefore, the purpose of the experiment is to assess the effects of conversion and enrichment on the workers. Local people in various parts of the prefecture have voiced strong opposition to the experiment.

Fukushima Town Council Asks for New Nuclear Reactor

The town council of Futaba-cho Fukushima prefecture, where Tokyo Electric Power Co.'s Fukushima 1 is located, decided on September 25 to urge the company to construct another reactor. The government gives subsidy, appropriated from the national budget to local governments which have accepted to site nuclear power plants, but this is cut when construction is completed. The local council also receives huge fixed property tax when the reactor begins operation but this is also rapidly reduced over time due to depreciation. Hence, after about ten years nuclear plants stop generating any revenue to the municipality. But municipal finances once increased cannot easily be reduced again. Consequently the municipality has no choice but to ask for a new plant to be constructed. Futaba-cho's recent decision clearly illustrates the fact that nuclear plants make municipalities dependent on large windfall subsidies but do nothing to revitalize the economies of local communities.

Bombs Dropped Near Reprocessing Plant Construction Site

Trouble after the take-off of a USAF F-16 jet fighter, from Misawa base in Aomori prefecture resulted in two 2,000 pound bombs being dropped off the coast of Misawa on November 8. The detonators had been taken out. The existence of these bombs contradicted statements by the government in the diet and by the governor of Aomori in the prefectural assembly. In replies to questions raised concerning the construction site of the nuclear facilities in Rokkasho village, neighboring Misawa-city, they had said that the US planes would carry only dummy bombs. Some concerned citizens are demanding a reexamination of

the safety review of the facilities, which does not take into account the possibility of a crash by a fighter plane carrying live weapons.

Monju Criticality Delayed

On November 11 PNC (Power Reactor and Nuclear Fuel Development Corporation) announced that mistakes had been found in the design of pipes, used in the fast breeder prototype reactor Monju (280 MW). The reactor is now under construction in Tsuruga-city, Fukui prefecture. It was on May 18 just after the start of comprehensive functional tests that pipes in the secondary heat transport system were found to have expanded thermally in the opposite way to that intended. PNC said the fault was caused by excessively strong springs in the expansion joints at the point where the piping penetrates the reactor vessel. It added that it would take a few months to deal with the problem. Hence it is unlikely that Monju will be ready to go critical in October 1992 according to schedule. In any case nuclear fuel production also appears to be behind schedule after the fuel production line produced a succession of inferior pellets.

South Korean President Pledges to Go "Nuclear Free"

On November 8 the president of the Republic of Korea Roh Tae Woo pledged to eliminate nuclear weapons and demanded that North Korea (DPRK) submit to nuclear inspections. In his speech he announced that South Korea would not produce, keep, store, deploy or use any nuclear weapons, that it would observe the nuclear inspection treaty and never possess reprocessing or uranium enrichment facilities.

Responding to the Korean denial that it would own reprocessing facilities, the Korean minister of Technology stated the same day in the Diet that Korea's policy was to entrust the reprocessing work to Japan. The statement came under strong criticism and the next day it was officially corrected. The position is now that "spent fuel will be stored until it becomes necessary to use it," and "it may be entrusted to England, France or USSR if necessary."

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NUKE INFO TOKYO is a bi-monthly newsletter which aims to provide foreign friends with up-to-date information on the Japanese nuclear industry, as well as on the movements against this industry in Japan. Please write to us for a subscription (subscription rate: supporting subscriber $40/year or 5,000 ¥/year, subscriber $20/year or 3,000 ¥/year). The subscription fee should be remitted from a post office to our post office account No:Tokyo 6-185799, HANGENPATU-NEWS by postal money order. We would also appreciate receiving information and newsletters from groups abroad in exchange for this newsletter.

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