Opinion
Reprocessing: Why Unnecessary

Interview
It’s Time to Promote Agriculture and Fishery
- Interview with Mayor Terada of Genkai-Town, Saga Pref. -

Letter
Nuclear Non-Proliferation regimes and 2004
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Cover : Morning in the Port of Hakodate: Red-Brick Warehouse Restaurant
On the signing of the U.S.-Japan Treaty of Friendship and Trade on July 29, 1858, this port was opened in the following year to foreign trade and developed as a natural good port, being the first in the modern age, along with Yokohama and Nagasaki Ports.
When was it, I wonder, that it became the daily custom in this country to throw things away after their uses?

A historical example of use-and-throw-away culture originating in the distant past is disposable chopsticks. According to what I have heard from a chopstick maker in Kyoto, chopsticks first started in the Yayoi period (300B.C.-3rd Century), when they were used as instruments in festivals. It appears that the use-and-throw-away custom of disposable chopsticks which seeped in afterwards was tied in with Shinto (Japanese religion) rituals. It was believed that a spirit came to reside in chopsticks once they had been used, and it became the custom that if they had been outside, they were not taken back home but rather thrown away on the spot. People then thought that if an animal were to play around with the chopsticks, then some disaster would be inflicted upon oneself, and so it was also to prevent this from happening that one had to be sure to break the chopsticks and throw them away.

From the Edo period (1603-1867) onward disposable chopsticks came into everyday use, and many of them were produced from the wood remnants of liquor casks, and were very popular among the hygiene-minded populace of Edo. And so we have them today. And yet in Japan, this sort of disposable chopsticks is something of an anomaly. From olden times, the Japanese have taken great care of their things, using them over and over again. Artisans in particular have valued their tools more than their life. That is also a factor in why they produced things of great value. I think that such a way of thinking has also been reflected in the technology for the peaceful uses of nuclear energy, ever since the start of its research and development.

Ever since the beginning of the nuclear energy development, the most important issue has been the management and disposal of radioactive wastes. The main factors behind this have been the natural birth of fission products, and the national sentiment against nuclear power of our people who have twice been the victims of nuclear bombs.

One of the peculiar characteristics of using nuclear energy is the fact that to produce the same energy nuclear power requires far less fuel compared with fossil fuelled power, and leaves a smaller quantity of wastes. If we compare the power generation of 1,000 MW by oil with the same capacity of power generation by nuclear fuel, the oil-fired generation consumes a yearly amount of 1.4 million tons of oil, and nuclear power requires only 30 tons of uranium, which is about 1/47,000 the quantity of oil. The amount of waste produced is as follows: for oil-fired plant 5 million tons of carbon dioxide; 40,000 tons of sulfur dioxide; 25,000 tons of nitrogen oxides; and 25,000 tons of dust. A nuclear power station emits a mere 0.9 tons of fission products. The waste produced by nuclear power is a startlingly tiny 1/5,600,000 part of that produced by oil power. However, if we were to count the fuel which is left over after burning also as waste products, we would have 28.8 tons of uranium and 0.3 tons of plutonium, bringing the total of waste products emitted from a nuclear power station up to 1/170,000 of that made by oil power plant.

A significant matter which will be touched later is the opinion that reprocessing of spent fuel should be stopped because it is not economic. If the spent fuel taken out from nuclear power plants were to be disposed of as it is, not only would the quantity be large, but also it would contain plutonium produced by fission, materials which are naturally undesirable from the standpoint of nuclear non-proliferation. If we just left the spent fuel where it was originated or kept it under a management system, it would be leaving its ultimate disposal for future generations to deal with while our current generations merely get the profits of nuclear power. Such activity must be unethical. Until now, many of the countries which have promoted nuclear power, including Japan, have worked under the premise that none of the waste materials produced should adversely affect either mankind or the natural environment. As a result, management and disposal of wastes has been so rigorous that it stands as a model for other industries to follow. These culture and that policy are not about to change.

As some of the mass media and the experts have pointed out, the construction costs of the reprocessing plant at Rokkashomura are without doubt rather high. The estimates have come in for criticism since the changes in the construction program in 1996, whereby the direct construction costs for the plant rose from 570 billion yen to 1.6 billion yen.
trillion yen. At the time, our Council invited Mr. S. Sasaki, President of the Japan Nuclear Fuel Limited, to come and let us listen to his explanation. One of the board members of our Council at the time was a certain Diet member who was furious at the fact that the Rokkasho reprocessing plant construction costs had ballooned to 2.8 times the original estimate. He fulminated, "Do you really consider such an outrageous estimate acceptable at a time when the prices of everything are being slashed?"

The costs included measures which needed to be taken on account of the military aircrafts and so on from the nearby Misawa Air Base; and there were measures to reduce even further the radiation emitted into the environment; and there were also changes in the design and installation of facilities for the mixed extraction of uranium and plutonium. All of these factors contributed to the high costs, but these construction costs to be reconsidered were much higher than original estimate of the cost.

The Tokai No. 1 reactor, which started operation in 1966 and was Japan's first practical commercial reactor, had to have a special earthquake-proof structure added to it, on account of the fact that Japan is more earthquake-prone than U.K., the mother country of that type of reactors. This resulted in electricity generating costs of 4 yen per kWh at the time. Bearing in mind that electricity generation using oil only cost 2 yen at the time, the cost of Tokai reactor was very high. Later on, we turned to the U.S. for our nuclear generating technology, since there was the possibility to increase the generating capacity and to have lower generating costs. Then light water reactors were chosen for the mainstream of Japan's nuclear power reactors.

Even so, it is only after the first oil shock that nuclear electricity generating costs have come to seem low. But after that there were a variety of troubles and accidents at nuclear power stations, and it is a case of "once bitten, twice shy", as a facility with many safety systems, without thinking about the extent of safety protection. So, as the price of oil has risen, the costs of nuclear electricity have risen along with it. Surely it is these high costs resulting from the unending zest for greater safety at nuclear power plants which have simply rippled across the safety improvements and design changes at the reprocessing plant. However, it is too simplistic to say that means we do not need the reprocessing plant, call it off. Rather, in future we should ask how cheaply we can run operations and still manage the plant effectively, then set a target cost and work towards that. These days the electricity industry is becoming more liberalized, and I would hope that the electric power companies become more aware of the cost aspect of the nuclear fuel cycle.

Another important subject we have to keep in our mind is the security of energy supplies. For countries such as ours, who have next to nothing in the way of energy resources, whether or not we can sustain development depends on our policies towards security of energy supplies. Of course energy policies are not limited to just nuclear energy. Japan also has oil reserve policies and, as of the end of December 2003, government reserves were 92 day worth (47.93 million kilolitres), and private reserves were 78 day worth (40.79 million kilolitres) making a total of 170 day worth of reserves. This needs money also.

As we have stated often in our bulletins, when the Cabinet set up an R & D budget of 235 million yen for the peaceful uses of nuclear energy, 9 years after the end of World War II, it was as a result of their deeply felt understanding that they must take some action about our lack of energy resources. Nuclear electricity generation caught their attention in part because uranium produces such a vast amount of energy, and even the uranium which does not burn can be utilized, using technological means, to produce energy. Which mean you can get thousands of years' supply of energy out of it, if only you use it as effectively as possible. Unless you reprocess the spent fuel, our uranium resources have no longer lifespan than our oil resources. To all of those people who think that we do not need the nuclear fuel cycle, do you think that such an attitude is right for this great nation of science of technology?

Editor
On May 19, 2004, the ‘Council on Long-Term Resources and Energy Policy’ was set up by Diet members from all parties, to discuss comprehensive long-term energy policies. At its first General Meeting, Jun-ichi Nishizawa, Chairman of our Council for Nuclear Fuel Cycle, gave a talk on our country’s future energy policies, and explained his views on the characteristics of each power resource and future energy supplies.

Over two hundred groups made up of members of the House of Representatives and the House of Councillors have been working in various fields. However, up to now there had been no study group to deliberate on long term energy policies as part of the broader field of energy, and the establishment of such group has been expected by the people involved with energy.

It was felt very strongly that the investigations into the overall state of energy resources in the long term, including the uses of nuclear energy, and how best to advance our development policies, should not be through the deliberations of the parliamentary committee alone, but also conducted independently by a large group of Diet members from all parties. It seems odd that such a Council had not been formed earlier for such an important matter as this.

Following the General Meeting at which the group was established, the first periodical meeting was held on June 2. The Deputy Vice-Minister of Minister’s Secretariat and Director-General of Agency for Natural Resources and Energy, Ministry of Economy, Trade and Industry (METI) were invited there, and opinions on future energy policies were exchanged heavily. It was decided to hold meetings of the Council once a month whenever the Diet is in session.

- **Prospectus for the Diet members' Council on Energy Policy (excerpt)**
  - In Japan which has scarce natural energy resources, a stable supply of energy is essential for the stability and improvement of citizens' welfare in the future, and for the maintenance and development of our economy. Likewise, for those nations who have only just begun their development, securing a stable supply of energy is an important national subject. The future development and use of energy resources is not something for each country to think about alone, but rather we need measures and policies which take an international point of view. This being the situation, on June 14, 2002, Japan set out its basic policy with regard to energy supply and demand, and enacted the Basic Law on Energy Policy, in order to promote the relevant policies and measures in a long term, comprehensive and planned way.
  - It causes us concern that the recent situation in the Middle East has such a great influence on the future world economy, our security guarantees, and if taken to the extreme, on the living environment of people all over the world. This country too has to deal with the various problems involved in bringing peace and stability to conflict-ridden regions such as the Middle East, as well as in securing future energy resources. To do that, we must analyse a broad array of issues from a wide-ranging perspective, including all the many energy-related issues, world economic, military, and regional situations, and population, environmental and geopolitical issues. We then need to deliberate on policies to address energy issues, and to secure energy on a world-wide dimension, and put comprehensive measures into effect. This means anticipating the way that Japan should be in the long term, thinking out a comprehensive energy strategy as a national policy, and learning how to use our various limited energy resources efficiently for the benefit of mankind.
  - The Diet members' Council on Energy Policy was set up with this in mind.

- **Main Members of the Board**
  - **Chairman**
    - AMARI, Akira
      - Member of the House of Representatives (Liberal Democratic Party)
  - **Acting Chairman**
    - OTA, Akihiro
      - Member of the House of Representatives (New Komeito)
  - **Director General**
    - OHATA, Akihiro
      - Member of the House of Representatives (The Democratic Party of Japan)
  - **Secretary General**
    - NAKAYAMA, Yoshikatsu
      - Member of the House of Representatives (The Democratic Party of Japan)

The Group consist of ninety five members of the House of Representatives and the House of Councillors (as of June 22).
Gravelines and Genkai-cho

– At the entrance to the office, there is a signboard saying “Welcome our guests from France.”

Mayor Terada: People from Gravelines in France arrived yesterday. There are six nuclear power plants in Gravelines and they are conducting Pu-thermal (MOX fuel use in thermal reactors) at four of these. When we spoke to Managing Director K. Matsushita of Kyushu Electric Power Co., Inc about how Genkai-cho would also like to conduct international exchange, it all began. Mr. Matsushita had been a Board Member of the World Association of Nuclear Operators (WANO), so he chose Gravelines in France from among several candidates and the international exchange with them began in March of last year.

– Did you become sister towns?
Mayor Terada: It hasn’t led to that yet. We do not yet know how our town assembly and its people will react to this, so we would like to have some interaction first and then ask the people’s opinion in order to decide what to do. For such reasons, our first visitor from Gravelines came last March, and this is now the third time. From Genkai-cho, we have sent a group once to Gravelines.

– So the people of Gravelines loving Genkai-cho have come 3 times already.
Mayor Terada: That is right. At first, one woman came here alone. She was the person in charge of nuclear power at the town office in Gravelines. She invited me to their Flower Festival in April, but I was unable to attend, so we sent three persons who are superintendent of education, and assistant manager and senior staff in charge of this international project in my stead. Last November, we had our Industrial Festival, so we invited people from Gravelines and held our second international exchange at Genkai-cho at that time. Although the Gravelines Mayor was unable to attend this festival, he and his wife as well as director of the nuclear power station at Gravelines and his wife came in this June, and we are now having welcoming parties in cooperation with people of the Genkai nuclear power plant.

– Next it will be your turn to visit Gravelines, won’t it. I think that it is wonderful that the connection of nuclear power and energy has lead to international exchange between the two towns in different countries.
The people of Genkai-cho must be feeling closer to France through this experience.

Mayor Terada: Yes, but it is hard for us to understand French language compared with our knowledge of English. We asked Ms. R. Hasegawa of the French Embassy to come all three times and help us. Ms. Hasegawa has good knowledge of technical terms with regard to nuclear energy and we were thankful that she could come and translate our languages vice versa for us.

Since it is the third visit, we were able to get more acquainted with, and this time, dancers and musicians also came from Gravelines. They played the accordion and danced for us until late at night.

- At this progress, you need some exchanges at least 2 times a year.

Mayor Terada: We will need to allot quite a bit for the budget. This year, we allocated a little over 10 million yen to this, and are thinking of 20 to 30 people participating in the exchange program.

Regional Development as a Result of Receiving Nuclear Power Plant

- It has been 40 years since Genkai-cho started activities to receive a nuclear power plant in 1965. Looking back, what are your thoughts concerning the town's acceptance of the nuclear power plant?

Mayor Terada: The idea of accepting the power plant was put forth in the early 40s (1965-75) of the Showa period, and we promoted this not only with the town's executive office but together with the assembly. This area is called the upper area of Saga Prefecture, and is at the very northern tip of the Higashi-Matsuura Peninsula. In the winter, the cold north wind blows heavily and we are not able to grow any good crops. There was also a lack of water and no good roads in order to cultivate. It was decided that a waterway should be constructed in order to make proper cultivated field on the tableland in this upper area. For this purpose, the upper area development work was begun in 1973. When this planning began, the acceptance of a nuclear power plant had pretty much been decided. With such natural conditions, it was thought that the acceptance of a nuclear power plant was the only way to develop the area. I think it was in the assembly of June 1967 that the town executive office and assembly together made a resolution for acceptance.

The same idea was brought up in Sendai-city in Kagoshima Prefecture at around the same time, and we had to compete for the plant construction. As a result of surveys, it was decided that the unit number 1 of the first nuclear power station for Kyushu Electric Power Co., Inc. would be built in Genkai-cho. Thinking of how the former leaders of our community thought of our future and decided to accept the power station, we are thankful for their deep insight.

- So, from the beginning, the people and the assembly all worked together toward the acceptance of the nuclear power station in order to promote the vitalization of the town economy and society.

Mayor Terada: That is right. There were some who were against it, but from the hard agricultural situation of the time, it would have been difficult to develop the area without some kind of institutional change. People had the foresight to see that in order for the area to be developed in some way, the acceptance of a nuclear power station was the best option. As a result, water was drawn through the upper development work, and the roads and cultivated field were improved. Agriculture is still difficult now, but despite of this fact, greenhouse horticulture and stockbreeding are growing, so I think we are pointed in the right direction.

Pu-thermal to Be Put forward after Discussion with Citizens

- Nuclear power development is a big part of Japan's energy policy, so although the area was developed through this decision as well, we feel that the cooperation of the people in this area has been very meaningful to the whole energy supply in Japan.

Mayor Terada: It is true. The lack of nuclear power plants in the present time would have created a severe situation for Japan's electric power supply. Last summer, Tokyo Electric Co.'s nuclear power plants were shut down, and I think people in Tokyo were very worried. There are various options such as natural energy, but when we consider the power needs of Japan at this time, I do not think we can do without nuclear power. We wish to participate in this national nuclear power
policy in order to contribute to the national electricity and energy situation.

- **Kyushu Electric Power Co., Inc.** has approached you with the subject of starting Pu-thermal at the Genkai Nuclear Power Station. What do you and your citizens think about this matter.

**Mayor Terada:** Around one month ago, on April 28, we received a request for advanced acceptance for the start of Pu-thermal at Genkai unit 3. "Why unit 3 at Genkai Nuclear Power Plant, what is the necessity, and is it really safe?" We asked that these first questions that came to mind be answered first. With regard to Pu-thermal, we had received some general documents, but we are not professionals in this area so we do not know any details. I believe that the real scientific explanation can only be made by a professional in the field.

We received the request for advanced acceptance from them on April 28, and I think they have also already sent an application for permission to modify their nuclear power facilities to the national government office. Of course Kyushu Electric Power Co., Inc. has been saying that it is safe, and shown us proof from around the world, but we are the ones who would be accepting this new development, and so we would like to seriously consider their proposal, study in detail and give our answer.

We made the resolution for acceptance of the plant in around 1967, and the actual construction was started in 1975, I think. In 1981, the unit 1 began operations. At that time, we were told that uranium would be used and that it would be safe, that we had nothing to worry about. Of course, unit 3, for which Pu-thermal is being planned, is greater in generating capacity than the unit 1 and 2. The unit 1 and 2 have 559GW while the unit 3 and 4 have 1,180GW as their installed capacities. In addition, I believe the interior components are upgraded. However, to burn MOX fuel in LWR was not in the former plans. Therefore, the citizens do not understand sufficiently about Pu-thermal. With this in mind, I said to the President of the Kyushu Electric on April 28 that they must provide sufficient explanations.

**Opposition Group Moved for Recall of Mayor**

- There are many cities and towns that have nuclear power plants, but it seems that Genkai citizens are quite at peace with their situation. I do not see people conducting protest movements, and it seems that maybe because of the early understanding toward accepting a nuclear power plant, our people have better communication with the electric company and with the plant. This must be something that you are working hard to promote.

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**Mayor Terada:** There are those opposed to the nuclear power plant here. One has written a book titled "Against Nuclear Power." This person used to be a middle school teacher and still opposes the plant as an influential of the Citizen's Assembly Against Construction of Nuclear Power Plants. In addition, there are many opposition groups within the prefecture. However, as a town, I believe that there is more understanding through the activities of previous mayors and assembly members to accept the plant for the development of the area.

Many things happened even after we accepted the construction of the plant. The construction of unit 3 and 4 was one of these times. During the public hearing meeting for unit 3 and 4 there was a protest movement among the citizens. With young people at the core, the "Council for Environmental Protection" was organized and conducted a recall movement toward the mayor. I think one of the reasons was that there were areas where the fishing rights lapsed and compensation...
money paid for the fishing industry. However, there was no compensation for the people in agriculture. They wanted to point out that although people in agriculture would not be directly influenced like the lapse of fishing rights, if there was an accident, agriculture would suffer the same as fisheries.

When this happened, those who were for the construction of additional plants also created an organization and both pros and cons conducted activities. There were various problems such as the protestors getting into the assembly meeting but in the end it was decided that these new plants would be accepted. This has lead to increased understanding. I think. Another thing is that three years ago, Kyushu Electric Power Co, Inc. spent around 10 billion yen to rebuild their exhibition hall, which had not been very big, in order to promote a harmonious coexistence with the local community. With the hall having the full size model of the nuclear power plant, people are able to do scientific tours, and there are representative traditional folk handcrafts from around Kyushu island exhibited as well so that people can enjoy themselves there for a half day or even one day. Admission is free. We received some area in this hall where the local souvenir association can sell specialty products.

- So, tour buses make their stops there and the hall is made so that people can learn both about the nuclear power plant and Genkai area in a natural atmosphere.

Mayor Terada: The plant can coexist with the citizens in this way, and the plant people also participate in the various functions in the town, donate the profit to the social welfare council, and generally maintain a good relationship with the citizens. Another fact is that the Kyushu Electric's nuclear power plants have had few troubles in the past. Of course there have been small problems, but none that were significant. This also helps to maintain the relationship of trust.

When the scandal with regard to malfunction data at the nuclear power plant of Tokyo Electric Power Co. came out, I talked with directors of Kyushu Electric right away to make sure that there was no such problem with our plant. And there was none. We were able to confirm that both the records and management were in order, and I believe that this made our trust deeper.

50 Years for Plant Operation and only 15 Years for Depreciation

- Is there anything that you think should be improved concerning our national energy and nuclear power policies?

Mayor Terada: There are several. There is an organization called the All Japan Council of Local Governments with Atomic Power Stations (Zengenkyo) made up of all towns, cities and neighboring towns and cities where there are nuclear power plants, and the chief of nuclear power section of Genkai-cho is a member of its managing panel. Those issues discussed in the managing panel go through the board of directors and general assembly, where requests to the national government are made. This year, the general assembly was held on May 26 and 27 and the requests toward the national government were made.

The Zengenkyo has stated various issues in the past, but especially with regard to the government subsidy. Last October, a revision in the subsidy system was promoted and I believe that it has become much more convenient to use them. I would like the government to continue to adjust the subsidy system to fit each locale and make it into something that would be profitable for the towns to accept nuclear power plants.

Another subject is the aging of the nuclear power plants. It has been 30 years since the operations started at the Genkai nuclear power station. I suppose that it will continue to be in operation for the next 10 to 20 years, but the problem is the actual difference between the actual lifetime of the plant and the depreciation period for taxation purposes. This is a problem related to industrial financing as well, so it is a difficult problem. However, the plant has already been in operation for 30 years, but depreciation is only 15 years. The value of property continues to decrease, and after 15 more years it will only be worth 10% of what it used to be. I would like this to be adapted to its actual value. This is within the jurisdiction of the national Ministry of Public Management, Home Affairs, Posts and Telecommunications, and we have requested this of the Ministry. This is a difficult problem.

Time to Promote Agriculture and Fisheries Furthermore

- How do you envisage this regional development in future.

Mayor Terada: We made a 10 year-plan for this town for the period between 1996 and 2006 and are now proceeding with this plan. Last June, there was an issue of merging 10 towns in this area. Genkai-cho decided not to participate in this but to go through with its own urban development. Because of this, although the total plan would have gone through revisions next year, we are planning to do it this year in order to quickly reevaluate our urban development. With the help of
the Center for Development of Power Supply Regions, we will be investigating the fundamental data.

The main industry in Genkai-cho is agriculture and fisheries, and there is not much commercial industry. Therefore, we would have liked to put our strength into agriculture. But as I said before, there are problems of imports of agricultural products and the rice crops are not very good, so we would like to emphasize greenhouse horticulture such as greenhouse strawberries, oranges and melons. There is not much interest yet, and only one person or so is in this area, but we would like to expand this greenhouse horticulture in the future.

Also stockbreeding. Previously, the name for Saga Beef changed to Japan’s famous Matsuzaka Beef (laugh). However, it is now sold as Saga Beef. The production area of Saga Beef is Imari and the tableland in the upper area but Genkai and the town next to us, Hizen-machi are becoming large bases for stockbreeding and it is much more common than rice, fruit or vegetables. Genkai-cho’s population was 6,986 in 2000, and was less than 7,000, but the population of livestock is bigger than the human population. Of course stockbreeding carries environmental problems, so we must also deal with such problems. The manure must be managed carefully in order to increase our stockbreeding without influencing the environment. We will promote this along with the greenhouse horticulture.

With regard to agriculture, the national policy is to promote large scale and size so that it is difficult for small farms to survive. However, such small farms exist and we cannot throw them out, so I believe it will become an important issue to find a way to maintain them.

With fisheries, the aquaculture industry has become the main. This also carries an environmental problem. Aquaculture, if conducted in the same place for a long time, will contaminate the ocean. 10 years ago, sardines were given as live feed to the fish. Now the feed is in pellet form so there is less contamination, but if conducted for a long time, such environmental problems will come up - especially since the aquaculture is conducted within the bay. We would like to move the aquaculture areas to outside of the bay but there are financial issues and adjustments to be made between different categories of fishery which make it difficult. In the outer ocean, there are those who draw nets and dive for fish as well as those using fishing rods. Due to such relationships between the categories it is difficult even within the same category to secure an area outside of the bay to conduct aquaculture. However, if we do not do so, the future may be severe for aquaculture.

Selling of Agricultural Products Using the Internet

In the agricultural area, there is one area we would like to promote. We have created a telecommunication network to cover every home, and we would like to sell our agricultural and fishery products over the internet. Because we have connected every home to the network, each person needs only to pay the connection costs in order to connect to the outside. I believe we should use this to develop our agriculture and industry. We were able to use the subsidy from the construction of nuclear power plant to create this network, although it still cost quite a lot.

- I think it is a very good idea for the town to help by setting network to each house and utilizing this to sell products online.

Mayor Terada: Situation is the same for both agricultural and fishery and now each person can sell their products - such as strawberries or melons with their own name label attached. We used to have just numbers. However, you cannot tell who made it with just a number. Now that each person's name is attached, people are able to know whose products are not good.

- I once saw some fruit sold with a label having the picture of the producer and his wife on it.

Mayor Terada: Not only the name, but a picture too. People feel more assured buying those kinds of products.

Mayor Terada: This makes it impossible to do anything bad. I think it is very good for creating more trust between sellers and buyers. The products are chosen carefully for shipment. My parents and my wife’s parents both make strawberries, but they are extremely strict in what products they send. If they are even a little bad, they are not sent.
Because quite a lot of such fruits are left over, we take them home and eat them. However, in fact, farms must use even these fruits to create income in order to be profitable.

- Increasing their added value such as making jam - the primary and a half industry isn’t it.

**Mayor Terada:** Because of this, we are now making jams and Strawberry yokan (sweet bean jelly) as well. As you said, it’s the primary and a half industry. The other thing is that each producer must sell diligently in the consuming region. If they can do that, producers can really benefit.

**Comparing Power Stations and Studying Them**

- **Moving on to energy and education, for example, do you take elementary school students and junior high school students to the nuclear power plant regularly and conduct special classes on energy in the classroom to take advantage of their unique environment?**

  **Mayor Terada:** I think that such classes are conducted according to the grade. We take them to go to the Genkai power plant at least once to study and then go to power plants in big cities every year. We believe that this is the duty of towns with nuclear power plants so we have included them in the classes, both in elementary and junior high schools.

  - That is interesting that you compare your plant with other plants.

  **Mayor Terada:** In order to understand what our plant is like, it is not good just to look at what we have here. We must also have a chance to listen to lectures at other places. Getting them to compare our facilities with others is what makes it a subject worth studying and it also makes them feel more secure. That is why we take them to go to both. In addition, the school teachers are asked to go to our power plant 1 or 2 times a year and listen to talk from the plant director at the teacher’s workshop.

- It is important to have teacher’s understanding in order to promote the understanding of students.

  **Mayor Terada:** With regard to nuclear power, we have asked the national government to include it in school studies from primary grades. We believe that we must be the first to set an example.

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**Mihama Invites Intermediate N-Spent Fuel Storage Facility - Following Mutsu City**

Mayor of Mihama town in Fukui Prefecture, Jitaro Yamaguchi, announced at the town council meeting on June 9, subject to the agreement of the council, that he would like to recommend that his town invite the construction of a facility for the intermediate storage of spent nuclear fuel, citing as his reasons the possibility that the storage facility for spent fuel located inside the Mihama nuclear power station will be full by around 2010, which could be detrimental to operations of the station, and also that the siting of this new facility there would contribute to the development of the town. Mihama will be the second municipality to formally announce such an invitation to accommodate a said facility, following Mutsu City.

The next step is for the town council to deliberate on the full range of issues arising from the invitation to build the facility in the town. On hearing this announcement from the mayor, the Kansai Electric Power Co. commented that they were most grateful, and took seriously the views of the mayor of this town where their nuclear power plant is situated. They added that they would keep a close eye on how the forthcoming discussions at the town council proceed.

Mayor Yamaguchi said that he himself had spent six months actively studying about the facility, and as a result he had confirmed its safety, as well as the contribution it would make to the town’s development. He would like to pay tribute to the way that this municipality, which is making such a fine contribution to the stable supply of energy in Japan, takes a broad view and shows such foresight, and also to the consideration they show toward the future development of Mihama town.

None the less, Fukui Prefectural Governor Issai Nishikawa remains firm in his basic belief that this facility should be located somewhere outside Fukui Prefecture, thus demonstrating the very clear differences in point of view, understanding and position between the two politicians.

In Japan, with the start of operation of the reprocessing plant at Rokkasho village in Aomori Prefecture having been delayed, at every nuclear power station, storage capacity for its spent fuel in the plant is becoming full, and every power company is promoting the establishment of external intermediate storage facilities for spent fuel. As we reported in Bulletin Number 43, the first of such programs was the approval for the Tokyo Electric Power Co. to establish intermediate storage facility in Mutsu City, and at present, we are long waiting for the consent of the governor of Aomori Prefecture.
Preface

The 3rd Preparatory Committee of the 2005 NPT Review Conference (hereafter "PrepCom") was held at the Headquarters of the United Nations in New York between 26 April and 7 May, 2004. The meeting was concluded amid confusion and without the adoption of a satisfactory report. This is the reflection of the unprecedented difficult circumstances surrounding disarmament and non-proliferation in 2004. This article intends to present the gist of discussions that took place during the PrepCom, and analyze new threats and concerns with possible responses.

PrepCom

The PrepCom was mandated to make every effort to produce a consensus report containing recommendations to the 2005 Review Conference and finalize the procedural arrangements to the Conference. However, PrepCom failed to adopt neither substantive recommendations nor a technical report. Thus the state Parties could not agree on the agenda of the Review Conference, background documents, and subsidiary bodies that can be established to address specific relevant issues. The Chairman’s summary which could be a basis for the substantive recommendations was criticized from all corners. Therefore, it was not annexed to the adopted report. The following are the gist of major discussions including criticisms against the chairman’s summary.

(a) The United States rejected any reference to the Final Document adopted at the 2000 NPT Review Conference (hereafter “the FD”). The US opposed continued application of the 13 practical nuclear disarmament steps that were agreed and contained in the FD. The United Kingdom and France held similar positions. (b) we should focus on immediate threats such as non-compliance, the prevention of non-state actors to acquire WMD (the US and others). (c) the 13 steps should be upheld and fully implemented (Non Aligned Member states (NAM) and most of non-nuclear-weapon states (NNWSs) including EU members). (d) inadequate reference to the strengthening of the NPT. (e) Less attention had been paid on non-compliance and withdrawal. (f) nuclear disarmament (Article VI) has been promoted (the US and some other nuclear-weapon states (NWSs)) (g) inadequate reference to the alleged Iran’s nuclear weapon programme. (h) NWSs have only focused on non-proliferation (NAM). (i) NAM and others want the establishment of subsidiary bodies on “negative security assurances” and “nuclear disarmament” which was resolutely rejected by the US.

The approach of some states appears to be rewriting the existing agreed document (e.g. the FD) that would not be accepted by the overwhelming majority of state Parties. While non-proliferation is a matter of urgency, paying little attention to nuclear disarmament may make NPT and related regimes less effective which is contrary to the wish of NWSs, including the US, to maintain and strengthen the regimes. I urge NWSs to review and recognize the value of arms control and disarmament now.

Proliferation

The risk of nuclear proliferation is a matter of grave concern to the international community. It poses challenges to international peace and security. The following observation can be made...
Regarding cases of Libya, Iran and the Democratic Peoples’ Republic of Korea (DPRK).

In December 2003, Libya pledged the dismantling of its nuclear programmes and declared its entire nuclear activities to IAEA and allowed their immediate inspection and monitoring.

As for Iran, on 18 June 2004, IAEA’s Board of Governors adopted a resolution which criticized the uncooperative attitude of Iran for IAEA’s inspection clarifying Iran’s nuclear programme. International concerns over the last two years were: (a) where did Iran obtain the blueprint and parts of advanced centrifuge which is capable of producing weapon grade uranium and (b) no explanation was given on why several sites are polluted by highly enriched uranium. The US believes that these facts indicate Iran’s possession of nuclear weapon programme and parts were imported from black market involved in Libya’s nuclear programme. The other concern is a possibility that Iran had conducted nuclear activities at the undeclared sites adjacent to military facilities. Commercial satellite’s images indicate that Iran razed facilities at the sites and removed the top soil. Iran must clarify its entire nuclear activities within a few months.

With respect to DPRK, (1) it was a NNWS Party to the NPT. (2) DPRK’s non-compliance with the NPT was uncovered more than ten years ago related its plutonium programme. In October 2002 it became clear that DPRK was pursuing a clandestine uranium enrichment programme which DPRK acknowledged to a US delegate. Being pointed out this violation, DPRK unilaterally removed and impeded the functioning of containment and surveillance equipment at its nuclear facilities and the nuclear materials contained therein and expelled IAEA’s inspectors. It withdrew from the NPT and publically stated its possession of “nuclear deterrent”. From the standpoint of non-proliferation this is a clear and serious challenge to nuclear non-proliferation regimes that the international community cannot overlook.

(3) During the six party talks in the past, DPRK had demanded negative security assurances (NSAs) and economic assistance or compensation in exchange for the dismantlement of its nuclear programme. It should be noted that in the Agreed Framework signed in October 1994 between DPRK and the US, the US expressed its readiness to not use or threaten to use nuclear weapons against DPRK if the latter takes measures to implement the Joint Declaration of North and South on the Denuclearization of the Korean peninsula” and engages with the North South dialogue.

(4) If DPRK remained in the NPT, it was already given NSAs and positive security assurances (PSAs) by UN Security Council (UNSC) resolution 984(1995) and guaranteed non-use of force against territorial integrity or political independence. NNWSs to the NPT have demanded NSAs to provide them with legally binding NSAs. To date, NSAs are not prepared to provide such assurances. In light of the distress of these NNWSs, how can we interpret DPRK’s demand of qualified NSAs who violated the NPT, withdrew from it and has no hesitation in stating its possession of nuclear deterrent?

(5) After the collapse of the Soviet Union, Kazakhstan, Belarus and Ukraine had become temporary NWSs. However the three states acceded to the NPT as NNWSs by dismantling of their nuclear weapons. On 5 December 1994, Russia, the UK and the US, three depositories of the NPT, in the form of memorandum committed to Ukraine: to respect the independence and sovereignty and existing border; to refrain from the threat or use of force against territorial integrity or political independence; to refrain from economic coercion designated to subordinate the exercise by Ukraine of the right inherent in its sovereignty; and provide NSAs and PSAs. Belarus and Kazakhstan were also given the same memorandum.

(6) Mongolia’s nuclear-weapon-free status may be helpful in resolving the nuclear crisis on the Korean peninsula. Mongolia unilaterally assumed obligations such as not develop, manufacture, store nuclear weapons and not to allow the deployment of nuclear weapons of other states on its soil in the domestic legislation through which it wants the provision of NSAs from NWSs. In October 2000, the five NWSs, China, France, Russia, the UK and the US, in their joint political statement provided Mongolia with NSAs and PSAs.

(7) On 14 May 2004, Mr. ElBaradi, Director General of the IAEA warned ”DPRK poses number one security problem and the way the international community responds to its nuclear problems will be an important precedent for would be proliferators. If they
accelerate their nuclear programme they will be immune and powerful countries negotiate with them7. From the standpoint of nuclear non-proliferation, regardless of the final outcome of the six party talks, DPRK, for its security and benefits, should dismantle its nuclear programme, return to the NPT as a NNWS and accept IAEA’s inspections. It should sign the Additional Protocol. The cases of denuclearization by Ukraine and Mongolia may be helpful for the solution of the DPRK’s nuclear issue. From the stand point of nuclear non-proliferation, there should not be any linkage between the correction of nuclear proliferation and economic assistance. It is possible to provide assistance as a result of the dismantling of nuclear programme followed by improved relationship.

(8) As Mr. ElBaradi pointed out, it is deplorable that the UNSC didn’t take any action toward the most serious challenge against international non-proliferation regimes posed by DPRK’s non-compliance, withdrawal from the NPT. It is not too late. The UNSC, either its resolution or its Presidential statement should express its view denouncing DPRK for its withdrawal from the NPT, calling for its return to the NPT and cooperation with the IAEA. In my view this is completely different in its dimension from the six party talks.

New Risks of Nuclear Proliferation: Crisis of Acquiring Weapons of Mass Destruction (WMD) by Non-State Actors

Nuclear black market

Libya’s decision to dismantle its WMD programme has become a turning point, revealing a wide and sophisticated network of nuclear black market being developed by Dr. A. Q. Khan. The international community is seriously distressed by the political pardon of Dr. Khan who violated and destroyed international norms of nuclear non-proliferation. It was reported that a number of states and businesses had been involved in this network. We cannot exclude the possibility of terrorists’ acquisition of nuclear technology and materials.

Non-proliferation resolution adopted by the UNSC

As a response to this new threat, on 28 April 2004, the UNSC unanimously adopted its resolution 1540(2004) under Chapter VII of the UN Charter. Its major elements are: (a) all states refrain from supporting by any means non State actors that attempt to acquire, use or transfer, nuclear, chemical and biological weapons (hereafter "NBC weapons") and their delivery systems; (b) all states establish domestic controls to prevent the proliferation of such weapons and means of delivery, in particular for terrorist purposes, including by establishing appropriate controls over related materials, and adopt legislative measures in its implementation; (c) the establishment of a committee, comprising all Council members which will report the implementation of this resolution and the presentation of the first report by state Parties within 6 months from the adoption of this resolution; and (d) the promotion of universal adoption of multilateral treaties aimed at preventing NBC weapons and the adoption of national rules and regulations for their compliance.

Whether or not this resolution would be effectively implemented is entirely depending upon member States’ actions. However, it is important to note that the UNSC spoke with a single voice on the prevention of the acquisition of WMD and their materials and means of delivery by terrorists. Before the adoption of this resolution, views were expressed that: (a) the draft resolution has no reference to nuclear disarmament; (b) concerned about the expansion of the UNSC’s legislative power and its balance with that of the General Assembly; (c) this issue should be dealt with in multilateral treaties; (d) it should include rogue states as well as non-state actors; and (e) the application of Chapter VII of the UN Charter is inappropriate.

However, the draft resolution was finally adopted for the following reasons: (a) There is a gap between actual threat and existing legal regimes; (b) it is a matter of great urgency and (c) the use of Chapter VII will help to send a message that proliferation is a threat to international peace and security. Although this resolution was adopted during the PrepCom, it did not attract the interest of state Parties perhaps mainly due to the lack of clear reference to nuclear disarmament in it. This resolution has a monitoring mechanism. We should closely look at its implementation. Currently the above mentioned committee is working out a guideline for its work.

Proliferation Security Initiative (PSI)

This initiative was launched by President Bush on 31 May 2003 in Krakow, Poland. PSI is an initiative to develop political commitments and practical cooperation to help impede and stop the flow of WMD, their delivery systems and related materials to and from states and non-states actors of proliferation concern. As a result of the Paris meeting held in September 2003 participants had agreed on "Statement of interdiction principles" which identifies concrete actions to collectively or individually interdict shipments of WMD, their deliver systems and related materials. To date 15
states have become the member of PIS and more than 60 states have indicated their support of PIS efforts. Current efforts focus on the improvement of nation's operational capabilities to interdict proliferators' shipments and to effective action against those who facilitate proliferation. In order to improve these capabilities, several exercises have been conducted.

PSI is consistent with the UNSC Presidential statement of 31 January 1992 which states that proliferation of all WMD constitutes a threat to international peace and security. It is in line with the Kananaskis and Evian G8 summits declarations as well as EU statements. With respect to PSI's legal basis, there is a view that board and searches a ship for contraband goods and interdiction of shipments may contrarily to the Law of the Sea Convention that places freedom of the high seas as a central feature. The other idea is that the right of self defence is also applicable to circumstances on the high seas and elsewhere.

Recently adopted UNSC resolution 1540(2004) may provide legal justification for the application of PSI while it targets only non-state actors. A matter of our concern is how to fill the gap between current national and international regimes and new challenges posed by rogue states and non-state actors. In today's rapidly changing world, legal regimes may need to adapt this new reality. The G8 summit recently held in Sea Island, agreed on the expansion of PSI activities in order to interdict an international network of nuclear proliferation.

Peaceful Use of Nuclear Energy and Non-Proliferation

The recent disclosures of non-compliance by certain states have raised serious concerns about the potential for peaceful nuclear activities to contribute to clandestine nuclear weapons programme. For example, the diversion of internationally supplied materials and dual use equipment, technology and information for the nuclear weapon purpose.

In October 2003 and March 2004, Mr. ElBaradei proposed to put nuclear fuel cycle under multilateral ownership. In April 2004, he also added some measures, for example to make Additional Protocol compulsory; not to allow states to withdraw from the NPT; to make export control system universalized and treaty-based; and to revive fissile materials cut off treaty negotiations.

President Bush in his statement at the National Defense University in February 2004, proposed, among others: (a) expand PSI; (b) pass a the UNSC resolution criminalizing proliferation related activities and international controls (This materialized by the UNSC resolution 1540(2004)); (c) expand the Nunn-Lugar Programme and the G8 Cooperation to secure nuclear weapons materials and technologies in the former Soviet states; (d) the Nuclear Supply Group should refuse to sell enrichment and reprocessing equipment and technologies to any state that does not already possess full scale, functioning enrichment and reprocessing plants; (e) only Additional Protocol signatories should be allowed to import equipment for their civilian nuclear programme; (f) create a special IAEA Committee on safeguards and verification.

During the Sea Island G8 summit held in June 2004, G8 adopted "action plan" similar to President Bush's proposal. However, they supported a one year ban on the transfers of equipment and technology for uranium enrichment and reprocessing.

In Canada's view expressed during PrepCom, cooperation in peaceful use of nuclear energy must in future be structured in a way which better address proliferating concerns while maintaining an overall commitment to the inherent goals of Article IV, particularly in terms of assisting the developing world to achieve sustainable development. It appears that this reflect the views of majority of state Parties.

US Nuclear Policy

During the course of PrepCom, the US delegation expressed immediate and strong opposition to any reference to the 2000 NPT Final Document containing 13 practical nuclear disarmament steps. We should closely follow the US nuclear policy since it has significant impact on the next year's NPT Review Conference and affect arms control and disarmament in the future.

The Bush Administration's requests for funds for FY 2004 aims at: (a) rescission of a ban on R&D on low-yield nuclear weapons; (b) Robust Nuclear Earth Penetrator (a study of modifying an existing weapons to that end); (c) Nuclear Test Readiness (shifting the maximum time between a presidential order to conduct a nuclear test from current 24-36 months to 18 months); (d) Advanced Concept Initiative (computer modeling, remotely monitoring warheads and studying how to design warheads with specific radiation outputs and other effects).

In response to some criticisms that the US nuclear policy might trigger nuclear arms race and thus negatively affect disarmament efforts, the US provided PepCom with following explanations: (a) (On 2(a) and (b) above) there has been no recommendation to the President for the development of such weapons and such development can proceed only with Congressional
approval; (b) (to the concerns that US nuclear policy may lower the nuclear threshold) it does not affect the threshold question as the US has had low yield nuclear weapons in its stockpile for decades and does so today; (c) (on the increased reliance on nuclear weapons) the US is looking at new ways to meet new threats to US security. Having a credible deterrence lowers the risks of war and decreases the chances that the use of nuclear weapons might have to be contemplated; (d) the US continues to observe moratorium of nuclear testing. The Nuclear Stewardship Programme can provide tools to ensure stockpile safety and reliability for the foreseeable future.

There exists an expectation that if the US Administration changes, the US will adopt a different policy. We should not have such high expectations since the emerging threats and their continued increase may not allow the new Administration to take the drastically different policy. As the above US explanation for speaks itself, the Congress controlling the budget has the power to support or deny a US nuclear programme. In order for us to convey a voice seeking the compete elimination of nuclear weapons and encourage the US to reaffirm the value of arms control and disarmament, our frequent contact with the US Congress will become more and more important.

Conclusion

While the number of NWS has increased from five when the NPT opened for signature to eight (India, Israel and Pakistan), DPRK’s nuclear deterrent, Iran’s alleged nuclear weapon programme and the disclosure of WMD programmes in Iraq and Libya, have further complicated non-proliferation matters. We are at the cross road of non-proliferation of WMD or their uncontrolled spread.

In July 2004, I propose following actions to cope with proliferation challenges: (a) non-proliferation regimes NPT as their core should be improved in order to effectively respond to new threats; (b) making the withdrawal form the NPT difficult, increase the number of signatories of the Additional Protocol should be vigorously pursued; (c) the role and function of IAEA should be further strengthened; (d) Iran is encouraged to disclose its entire nuclear programme and comply with the NPT as a NNWS; (e) from the standpoint of nuclear non-proliferation, the international community is obliged to denounce DPRK’s non-compliance with and the withdrawal from the NPT; as advised by Mr. ElBaradei the UNSC should express its view on these points; (f) the implementation of UNSC resolution 1540(2004) on non-proliferation and the promotion of PSI are both important; (g) the reexamination of nuclear fuel cycle to prevent the diversion of nuclear materials and technologies for weapon purposes is essential; (h) the international community should demand the full disclose of the true facts of nuclear black market and it should be completely eliminated; (i) above all, the most important task for the non-proliferation regimes is the significant reduction of existing nuclear arsenals.

In order for us to promote serious consideration and implementation of above mentioned initiatives and measures it requires cooperation and coordination among states. During the PrepCom, each state unilaterally expressed its views and no meaningful interactions or dialogue took place. United Nations Conference on Disarmament Issues to be held in Sapporo, Japan between 26 and 29 July 2004, organized by my Centre, will provide participants with a unique opportunity to have frank exchange of views on the whole spectrum of nuclear disarmament and non-proliferation issues and to contribute to the preparation of the next year’s NPT Review Conference.

Epilogue

During the PrepCom, a small disarmament exhibit with a tiny desk and panels was held in front of Conference Room 4 where the meeting took place. It was jointly organized by Hidankyō, Hiroshima and Nagasaki City. Each delegate entering and exiting the room could not avoid seeing the video images of Hiroshima and Nagasaki destroyed by the drop of atomic bombs supplemented by material and appeals.

When the meeting began having difficulty in agreeing on a technical report, a South African delegate reportedly raised a fundamental issue by saying, “We should ask ourselves about the objective of our exercise. We must go back to August 1945. Let’s get out of this room and see the exhibit.”

While the consideration of concrete disarmament measures is necessary (e.g. prioritizing disarmament agenda, or calculating the number of missiles or warheads to be destroyed), informing the world of the calamity experienced by Hiroshima and Nagasaki, the indelible strain on human history, appears to be even more important today. In this context it is worthwhile considering the inclusion of a visit to Hiroshima and Nagasaki as part of official events of foreign dignitaries visiting Japan. A project inviting several foreign Ambassador to the Conference on Disarmament to visit the two cities is also useful.

The dissemination of information regarding the tragedy of Hiroshima
and Nagasaki and calling on states in the world not to repeat such tragedies is naturally the task of the two cities. But the Government and the people of Japan can also play an important role in this field with a view to ensuring Nagasaki as the last City who has suffered the indescribable calamity.  

The Director General of the International Atomic Energy Agency (IAEA), Mohamed ElBaradei, said at the opening of the IAEA Board of Governors, which took place from June 14, "I am pleased to note that the Secretariat was recently able to reach all conclusions needed for the implementation of integrated safeguards in Japan. The comprehensive nature of this work has enabled the Agency to enhance the effectiveness of safeguards in Japan and will result in reducing the frequency of its inspections at a significant number of Japanese facilities."  

IAEA safeguards requires an annual budget of some one hundred million dollars, and about six hundred personnel. Bear in mind that the IAEA's total annual budget is 245 million dollars, and you can easily see that safeguards account for a very considerable proportion of it. The amount of work involved in inspecting the nuclear facilities in the world takes ten thousand person-days per year, of which one fifth is accounted for by Japan and European countries. In Europe, France and the United Kingdom, nuclear-weapon states, are excluded, so for Japan and non-nuclear-weapon states in Europe, around twenty million dollars and two thousand person-days of inspector efforts are being spent.

Japan and these non-nuclear-weapon states in Europe have no intention to produce nuclear weapons, something which the IAEA itself can well vouch for as a result of its previous inspection activities. Looking at Japan of all countries, given the cooperation which we have afforded hitherto with respect to the development of inspection equipment and the improvement of inspection technology, we might well call Japan "An Excellent Student" among the countries being inspected.

In order to maintain nuclear non-proliferation regime, the IAEA inspections are one means of verification which we must have, and especially since Iraq and the North Korean nuclear development issues, strengthening them has become a cause for international concerns. However, to subject those countries which are suspected of developing nuclear weapons, and those countries which have no such intentions and are fully cooperative, to IAEA inspection with equal frequency and equal thoroughness, as has been done hitherto, is irrational and wasteful; furthermore, as nuclear power plants and suchlike increase, the IAEA safeguards budget and personnel will have to be increased accordingly, a situation which is a source of worry.

Big contributory factors to this latest statement from the Director General are doubtless the introduction of a system of unnotified inspections and the use of high calibre equipment to give more credibility to automated inspections, which have been discussed and researched into for some time now. Japan, of course, was quick and proactive in signing the Additional Protocol to the 1998 Safeguards Agreement, whereby we agreed to the unnotified inspections which form part of the strengthening of the international nuclear non-proliferation system.

Similarly with the rationalization of the safeguard inspections, there have been strong indications of support from all quarters in Japan; the CNFC too has continued to promote this, through this magazine, to presidents, foreign ministers, the nuclear authorities in every country, and experts at the IAEA, ever since we were first established in 1992.

This latest statement from the Director General of the IAEA provided newspaper articles saying that Japan is not developing nuclear weapons, and formally recognises that we are interested only in the peaceful uses of nuclear energy. His statement certainly does not look at the matter like this, but rather pronounces that in Japan up to the present no transfer (of materials and technology) to the development of nuclear weapons has been found. From the point of view of the inspectors, that is of course the only kind of evaluation that they can make, and that is surely how the IAEA safeguards ought to be.

For the IAEA, this can be thought of as being a judgement to the effect that, based on such an evaluation, Japan's nuclear facilities are among the best for helping to make the integrated safeguards inspection system more rational and more efficient. Increasing the effectiveness of the inspections in Japan not having problems can be thought of as a way of further strengthening the way they deal with countries which undergo only partial inspections (Israel, India, Pakistan, Cuba), and with the inspection of facilities which are not declared.
Philosophy of the Nuclear Fuel Cycle Policy

Shigeru Goto

The Neckar River was swollen. Just when you thought it was going to be fine, all of a sudden there would be a shower. My friend looked up at the sky, and shrugged his shoulders.

It was the summer of 1997 that I visited Germany in such weather conditions, flying over to Frankfurt in order to look at how MOX fuel (uranium/plutonium mixed oxide) was being produced and used.

On the next morning, luckily having the time to spare, I took a car to Heidelberg. The University of Heidelberg, Germany’s most ancient, has been home to many Japanese scholars including Kuki Shuzo, Abe Jiro and Miki Kiyoshi. Every time I read such men’s accounts of their time studying overseas, I felt some indefinable kind of nostalgia.

I climb up to the old Renaissance style castle, ravaged by countless wars. The lime trees were decked out in little, pale yellow flowers. Their delicate smell seeped into the rain. I walk across the river, along the famous “philosophers’ path”. I like this university town of Heidelberg, surrounded as it is by water, and greenery and its ruined castle.

It was about a quarter centuries ago, on my journey from the Middle East to Europe to look into the energy situation there, that I visited the Biblis nuclear power station, in Germany. This time, my objective was to observe the Philippsburg nuclear power station. They are only a very short distance apart, with Heidelberg sandwiched between them. It is surrounded by the Rhine and the green forests, and countryside spreads out all around. The red roofs of the residential quarters are just around the corner. The village blended in with nature.

In this power station, MOX fuel is used in No. 2 (PWR) reactor, after reprocessing the spent fuel from No. 1 (BWR) and No. 2 reactors, and turning the plutonium which has been separated into MOX fuel. Normally 20 MOX fuel assemblies are loaded in average, though they are licensed to load up to 70 assemblies at maximum.

I went to observe the No. 2 reactor, which had only just had its regular inspection. Dr. Ehrlich, director of the Phillipsburg nuclear power station, who kindly acted as my guide, told me about their plant, brimming with confidence; he mentioned that they are not using any special handling procedures simply on account of the fact that they are using MOX fuel. His words have lingered in my mind impressively.

In the car on the way back, I remembered something which happened when I once visited the German Social Democrat Party. The country lodge where I had been invited by Hans-Jochen Vogel, who was at that time the deputy leader of the party, was situated right by the Rhine, overlooking the river, and amid euphonious birdsong, in a location which was so quiet that one would never have thought it was on the outskirts of the capital, Bonn.

The Germans love their forests. They go at the weekends in their families to seek solace in the forests, they pick the nuts and berries and the mushrooms. Those among them who lament the way that their forests have been perishing in the last few years are attracted by the policies of the Green party.

Mr. Vogel told me frankly that in order to win back those of its supporters who had gone over to the Green Party, the Social Democrat Party tried
tackling on board the Green Party's policies, but as it turns out, that has had the effect of building up the base of their political support. It may not be quite Matsumoto Seicho's novel 'The Black Ocean of Trees', but the Green Party, with its slogan of 'the voice from the deep green forest', has without doubt given a very considerable stimulus to established parties.

In spite of Dr. Ehrlich's statement that the technology for using MOX fuel and the technology for using uranium fuel are not different, and that there are no problems concerning safety, those concerned know that nuclear power policies from now on will have to be made against this kind of political background, which is perhaps why they have such glum faces.

The German Social Democrat Party, which was in power from the 70s into the 80s, and which vigorously promoted the development of nuclear power, was defeated in the election of 1986 and became the party of opposition. This, together with the effect of the Chernobyl accident, made them turn against nuclear power. Although nuclear power policies were not a direct point of contention, the Social Democrats squeezed to victory the 1998 election by a narrow margin, but they made a coalition with the Green Party and revised the laws on nuclear power.

Something happened two days before I set out from Japan. I heard the news that the new Prime Minister of France, L. Jospin, said in his first policy speech that they were going to abandon the Super Phoenix fast breeder reactor. When I moved on from Germany to France and asked the staff at Electricité de France (EDF) how they had taken this, the assistant manager of the fuel planning group, Mr. Grogin, told me as follows.

"It wasn't at all clear that the Socialist Party and the Green Party had come to any agreement before the election, and Prime Minister Jospin himself had been saying what an important role nuclear power generation has to play in France, and how it was difficult to see the policies on nuclear power changing."

I have a photo here in front of me. It was taken in 1984 when I visited the headquarters of the French Socialist Party, and shows me there with the staff. If you look carefully, you can see that on the wall behind it says 'coming into force on June 17' and there are two posters bearing the smiling face of Jospin, the candidate. At the party headquarters, the words of the policymakers - to the effect that France is poor in natural resources, just as Japan is, and the utilization of nuclear power is a very important choice - are still to this day are fresh in my mind. Nuclear power had been vigorously pushed by the socialist President F. Mitterrand too, and now it accounted for more than 75% of the country's total electric output. And its nuclear electricity generating capacity is second only to the U.S.

The youthful Jospin became the party leader, and they scored a victory in the election of 1997. He thus became Prime Minister of a left wing coalition Cabinet formed with the Green Party, with whom they had put on a united front. Holding together their coalition was their main consideration, but still they were concerned that if they were to take on the Green Party's demand for a moratorium on nuclear power development lock, stock, and barrel, then their power base might suffer serious damage; but Prime Minister Jospin was brave enough to select the leader of the Green Party, Dominique Voynet, as the minister for the environment in charge of nuclear power. I have heard it put that Mr. Jospin's calculation along the lines of if they stirred up the debate, then it ought to be become clear that they cannot change the nuclear power policies, would seem to be working.

I put the following question to the vice president of the COGEMA (Compagnie Générale des Matières Nucléaires), Mr. Ricot. "I have listened with great interest to how MOX fuel is most effective from the point of nuclear non-proliferation, but is this an internationally agreed acknowledgment?" The vice president replied, "Objectively speaking, that is right. The best proof lies in the fact that the U.S. is moving towards burning MOX fuel manufactured from weapons grade plutonium. The experts also agreed at the G7 plus one meeting held in Paris in 1996, and the matter was also touched on at the Denver summit the following year." And I cannot forget the smiling faces, those shrugs and nods at the policy towards the use of MOX fuel in Japan.

At present France loads MOX fuel at twenty one nuclear power reactors, with a further eight still at the planning stage.

I flew on from a rainy Paris, to Marseille. In complete contrast, the sun there was bright, and the clear Mediterranean light pouring down dazzled my eyes.

MELOX, which manufactures MOX fuel, is situated in the region of
Provence, so beloved of van Gogh and Cezanne. It lies less than an hour’s drive away from Avignon, where I was staying, amid a landscape of deep green vineyards. Fields were brilliant with sunflowers, looking just like a giant battalion with golden helmets on; and between them, blue strips of lavender flowers added yet more color.

MELOX is a factory which handles plutonium. There were three processing lines, including a one hundred ton sintering furnace, and two processing lines which packed the MOX fuel pellets into the cladding tubes, and one processing line which made them into fuel assemblies. They were all enclosed in glove-boxes made of lead glass, and were completely automated.

They blend uranium and plutonium powder uniformly, and make small cylindrical pellets by pressing them at a pressure of five thousand bars. Then they bake them hard at 1700 C, and pack the sintered pellets into the cladding tubes, and bind up the filled tubes into fuel assemblies.

The room where the MOX fuel assemblies were the radiation management any different from that used with uranium fuel. The way that they went to such trouble to let me view all of these processes in their entirety made me feel that they have such great confidence in their technology.

With the recent developments with the Pu-thermal projects here in Japan in mind, I looked back at what I had seen and heard in those various countries. I was made to think once again that policies on nuclear power are, more than any other issue, used to make political capital. This is because the peace time use of nuclear power and the military use of nuclear weapons are always seen as the two sides of the same coin, and this perception blocks any movement forward.

Sine Pu-thermal was first put into operation in Belgium in 1963, there have been about 4,000 assemblies used in 55 plants, in ten countries throughout the world. Here in Japan, in 1988 the Kansai Electric Power Co. used four assemblies in its No. 1 reactor at Mihama Nuclear Power Station, and the Japan Atomic Power Co. used two assemblies at its No. 1 reactor at Tsuruga Nuclear Power Station.

It was in 1997 that the Cabinet approval was obtained for the promotion of Pu-thermal program. The plan is that between 16 and 18 nuclear power plants will implement Pu-thermal project by 2010. MOX fuel produced overseas has once been brought into the Kansai Electric Power Co.'s Takahama Nuclear Power Plant, but it has unfortunately been frozen. As a result of the forging of MOX inspection data, and also the criticality accident at the JCO fuel conversion plant in Tokaimura, and again the attempt by the Tokyo Electric Power Co. to hide troubles at their nuclear power plants - all of which are clearly problems quite unrelated to the safety of Pu-thermal - there is now a general climate of unease among the public over whether Pu-thermal might also be dangerous.

The Nuclear and Industrial Safety Agency of Ministry of Economy, Trade and Industry (METI) has discussed the report issued by the Kansai Electric Power Co. explaining the improved situation regarding the procurement of MOX fuel produced overseas, and as a result on February 11 this year, the agency gave their judgement, recognising that the system of quality assurance necessary to carry out the procurement of imported fuel in an appropriate manner is now in order.

In March, governor I. Nishikawa of Fukui Prefecture gave his consent to the plans for the Pu-thermal project to go ahead at Kansai Electric Power Co.’s Takahama Nuclear Power Station. Then proposals for introducing Pu-thermal power generation were made to the respective prefectural governors, in April for the Kyushu Electric Power Co.'s Genkai Power Plant, and in May the Shikoku Electric Power Co.'s Ikata nuclear power plant. As I think back over the past five years, at the enduring loss of faith in nuclear power and this hard winter of frozen progress, I believe that now people have finally begun to see reason.

The reaction of the mass media to this development has become comparatively cool, (notwithstanding an Asahi newspaper editorial telling us not get involved in this cycle), and this is perhaps due to the common acknowledgement which has now emerged, that for Japan, a country so vulnerable in energy resources, nuclear power is an option which we cannot pass up on. The Pu-thermal project, which recycles the spent fuel and uses the plutonium extracted, is seen as technologically no longer anything new in the overseas countries.

You sometimes hear such opinions as, 'MOX fuel costs higher than uranium fuel,' or 'the uranium savings it brings about are very small', or even that 'plutonium is much obliged to restrictions imposed by foreign countries in the name of preventing nuclear proliferation. Japan will be suspected of harboring nuclear weapons.'
Another reason that it is important to press ahead with the Pu-thermal project is that we are not seen to be holding excess amount of plutonium. The other day, a big newspaper headline told us that 'the savings afforded by the reprocessing of uranium are small'. Quoting from a bulletin to be published shortly by the International Atomic Energy Agency (IAEA), it said in gleeful tones, "The amount of known uranium resources is enough for 270 years, but even using the Pu-thermal system which reprocesses uranium, it only comes to 300 years' worth, which is hardly a great difference." But even supposing that this analysis were correct, then a difference of thirty years is surely not such a small one.

Looked at from the points of the view of global warming and energy security, the significance of plutonium use appears to have undergone a re-evaluation. Even though the supply and demand balance of uranium has been sagging, we cannot waver in our basic acknowledgement that we should proceed with the nuclear fuel cycle program, when we think how the situation with regard to energy resources has been getting more and more severe in recent years.

In these days, people who believe the principles of the market economy fanatically are rampant. I sense danger for the present climate such people create where cost is the be-all and end-all, examining the economy of each step in the nuclear fuel cycle program, when we think how the situation with regard to energy resources has been getting more and more severe in recent years.

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On June 10 at Kasumigaseki in Tokyo, the 13th General Meeting of the Council for Nuclear Fuel Cycle (CNFC) was held, and the activity report and financial report for FY2003, along with the program and budget plan for FY2004 were approved. In addition, new executive members were elected as the terms of office for directors and auditors was expired.

**Activity Program for FY2004.**

The peaceful uses of nuclear energy is essential for achieving a long-term stable energy supply, and to counteract global warming. Furthermore, to make efficient uses of nuclear energy in the future, we need to use plutonium. To advance the peaceful uses of nuclear energy in the world, we need to promote more strongly nuclear non-proliferation.

In the long term, this country's energy demands are expected to fall, due to factors such as the decrease in population, but the world population is forecast to reach 9.3 billion by the year 2050, along with acceleration in the progress of economic development in many countries throughout Asia and Africa. This means that we have to take a long-term perspective on the efficient uses of a variety of energy resources, and also on issues such as global warming, which are tied up with energy. In that sense, electricity generation by nuclear power is the most realistic and practical option.

Therefore our Council, in an effort to promote further understanding of our country's nuclear energy policies and the policy regarding the peaceful uses of plutonium, is carrying out wide-ranging studies into the various matters connected with the nuclear fuel cycle, including the role played by nuclear electricity generation, intermediate storage facilities for spent fuel, the issues concerning the siting of high level radioactive waste disposal facility, and the issues surrounding the uses of MOX fuel. At the same time, with regard to Japan's nuclear energy policies, we are deliberating new policies and measures in the light of social changes, and making our recommendations known to all the parties involved. Given the problems raised by the development of nuclear weapons in such countries as Iraq and North Korea, which has become a threat to world peace and stability, we are also looking into the various issues involved in nuclear non-proliferation and nuclear disarmament. We would also like to constantly affirm this country's firm belief in, and committed stance toward, the peaceful uses of nuclear energy.

We will henceforth publish our findings domestically and internationally in the bulletin 'Plutonium', and also on our website.

Furthermore, we will cooperate actively in the activities of the Council on Long-Term Resources and Energy Policy, which was established in May 2004, by nonpartisan Diet members.

**Election of Directors and Auditors**

Directors and auditors were elected due to the expiration of term in office. All directors and auditors were re-elected. At the board meeting which followed the General Meeting, Dr. Jun-ichi Nishizawa (President of Iwate Prefectural University) was appointed Chairman, and Mr. Yuji Tsushima (Member of the House of Representatives) was appointed Acting Chairman.

**Members of the Board**

**Chairman**
- **NISHIZAWA, Jun-ichi**
  President, Iwate Prefectural University
  Former President, Tohoku University
  Acting Chairman

**Directors**
- **ETO, Akinori**
  Member of the House of Representatives
- **GOTO, Shigeru**
  Former Member of the House of Representatives
- **IMAI, Ryukichi**
  Former Ambassador Extraordinary & Plenipotentiary, Conference on Disarmament (Geneva)
- **NAKATANI, Gen**
  Member of the House of Representatives
- **OHATA, Akihiro**
  Member of the House of Representatives
- **OSHIMA, Tadamori**
  Member of the House of Representatives
- **TANABU, Masami**
  Member of the House of Councilors
- **WATANABE, Shu**
  Member of the House of Representatives

**Auditors**
- **ASANO, Shuichi**
  Partner, Toyo & Co. (Certified Public Accountant)
- **SHIMOYAMA, Shunji**
  President, Japan Chapter Institute of Nuclear Material Management

We ask for your continued cooperation with and support for the activities of CNFC.
This year would appear to be a bumper year for typhoons. I have heard that there was time when the U.S. was promoting a project which used an atomic bomb in order to kill these typhoons, which are the cause of so much damage, both human and economic. Here in Japan we need the typhoons in order to alleviate water shortages, and so we stood opposed to that project, and fortunately everything turned out well. Now, when I come to think about it, if they used an atomic bomb every time a typhoon blew up, then the earth would soon become terribly contaminated with radioactivity. The Big Wave in Hawaii, so beloved of the surfers who congregate there, is a product of typhoons too.

According to the estimate of uranium supply and demand up to the year 2020 issued by International Atomic Energy Agency (IAEA) and the Organisation for Economic Cooperation and Development/Nuclear Energy Agency (OECD/NEA), the uranium supply and demand situation is expected to become severe due to the expected increase in future years of nuclear power plants. The price of uranium will of course go up. One cannot help thinking with some regret that we really should have expedited the development of fast breeder reactors and high-temperature gas cooled reactors.

It seems as if the summers are getting hotter and hotter every year. In the past few years, it has been the fashion among the ladies to carry a black parasol in order to prevent sunburn in Japan. I now feel that many men too are starting to wear hats. In the days before we all had air conditioning, we used to put reed screens up, and sprinkle water around to make things cool. Nothing could compare with barley tea cooled by water out of the well. I remember how when men walked around outside, they wore linen suits and white leather shoes, and had those panama hats which looked so cool. People in the olden days looked so cool and smart. This summer why don't we buy panama hats?