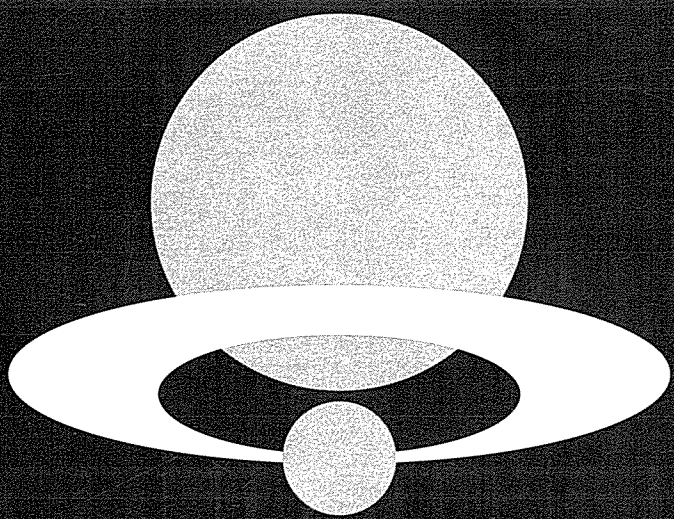
The 36th JAIF ANNUAL CONFERENCE

ABSTRACTS



Tsuruga Sessions
April 15, 2003
Tsuruga Citizen Culture Center, Tsuruga City

Fukui Sessions
April 16～17, 2003
Phoenix Plaza, Fukui City

Fukui Prefecture

JAPAN ATOMIC INDUSTRIAL FORUM

SHOULD WE CONTINUE TO MINE ?

All energy resources are limited.
If we continue mining at this pace, they will be exhausted before long.
Remaining deposits of oil and natural gas are about 50 or 60 years,
uranium is about 70 years, and coal, which is relatively abundant, is about 200 years.
But uranium, as a fuel for nuclear power plants, can be recycled to 96% of its original amount.
When we reuse uranium, it becomes more efficient in producing power.
Up to now we have used a large quantity of fossil fuel at the expense of our environment.
For the development and posterity of our nation and the earth,
it is time to switch to more efficient, clean and long lasting nuclear energy.

ENERGY CREATED BY TECHNOLOGY
MITSUBISHI PWR NUCLEAR POWER PLANT

SUBISHI HEAVY INDUSTRIES, LTD.
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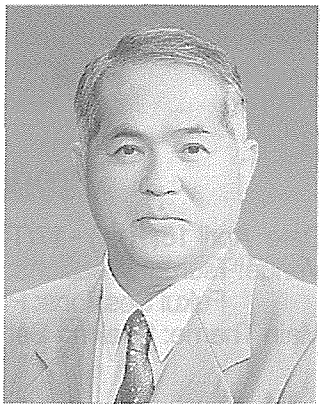
Jun-ichi Nishizawa
JAIF Chairman



Shinpei Kojima
President
Fukui University

The 36th JAIF Annual Conference
Main Theme: Seeking Better Public Understanding
– For the Further Nuclear Development

We cordially welcome all of the participants in the 36th JAIF Annual Conference in Tsuruga City and Fukui City, Fukui Prefecture, Japan, April 15-17, 2003. With the biggest nuclear establishments, Fukui is a main place for research, development and utilization of nuclear energy in Japan.

Energy is among others the key element in an internationally shared commitment to sustainable development. It is a common understanding that nuclear energy produces no CO_2 in generating electricity, effective as a global warming solution. However, in Japan, "rebuilding" confidence in nuclear power among public damaged by the falsification of inspection records is the major task that the nuclear industry faces.

This year's Conference provides a platform where specialists in various fields exchange views and ideas on nuclear related issues such as strategies for peaceful use of plutonium, energy crucial to sustainable development of human society, improved operations and maintenance of nuclear power plants, status quo of high-level radioactive waste disposal programs and nuclear energy and radiation used in our daily life.

Taking into account Tsuruga and Fukui area with a number of nuclear facilities including the FBR "Monju" located nearby, it is also aimed to provide an opportunity for nuclear-related parties and the public to straightforwardly express their opinions on challenges and measures to be taken for the further nuclear development.

Program of the 36th JAIF Annual Conference

Date: April 15(Tue.) - 17(Thu.), 2003
Venue: Tsuruga Sessions: Tsuruga Citizen Culture Center, Tsuruga City, Fukui Prefecture
Fukui Sessions: Phoenix Plaza, Fukui City, Fukui Prefecture
Main Theme: Seeking Better Public Understanding - For the Further Nuclear Development

Tsuruga Sessions	Fukui Sessions	
April 15 (Tue.)	April 16 (Wed.)	April 17 (Thu.)
Registration (8:45-)	**Fukui Opening Session** (9:00-9:40) <Remarks> ○JAIF Chairman ○Minister of MEXT ○Minister of Science and Technology Policy ○Minister of METI	**Session 3** (9:00-11:30) **Advancing Global Programs for High-Level Radioactive Waste Disposal** <Keynote Speeches> <Panel Discussion>
Tsuruga Opening Session (9:30-10:30) <Remarks> ○JAIF Chairman ○Governor of Fukui Prefecture ○Mayor of Tsuruga City ○Chairman of the Preparatory Committee	**<Special Presentation>** (9:40-10:10)	
<Special Presentations> (10:30-12:00)	**Session 1** (10:10-12:00) **Sustainable Development of Human Society — Challenges in Terms of Environment and Energy** <Presentations>	
Lunch Time (12:00-13:30) (Kirameki Minatokan Hall)	**Luncheon** (12:20-14:10) (Fukui Washington Hotel)	Lunch Time (11:30-13:00)
Stage drama on nuclear energy (12:45-13:10)	Picture story show on nuclear energy (13:40-14:05)	
<Special Presentations> (13:30-14:30)	**Session 2** (14:30-17:30) **Improved Operations and Maintenance of Nuclear Power Plants : New Challenges** <Keynote Speech> <Panel Discussion>	**Session 4** (13:00-15:30) **Here in Fukui: Let Us Think about Nuclear Energy and Radiation Used in Our Daily Life** <Panel Discussion>
Plenary Session (14:45-17:20) **Strategies for Peaceful Use of Plutonium** <Presentations>		**Gathering to Answer to Questions from the Citizens** (15:40-17:00) (Small Hall)
Reception (17:30-19:00) (Kirameki MinatoKan Hall) <Culture Event>		
Public Dialogue (18:00-20:00) (Plaza Bansyo)		

Program of the 36th JAIF Annual Conference

Main Theme: Seeking Better Public Understanding – For the Further Nuclear Development

Tuesday, April 15

Tsuruga Sessions

at Tsuruga Citizen Culture Center

Registration 8:45

9:30-10:30

[Tsuruga Opening Session]

Chairperson: Shoichiro Kobayashi, Vice Chairman, Japan Atomic Industrial Forum

Remarks:

- ☐ Jun-ichi Nishizawa, Chairman, Japan Atomic Industrial Forum
- ☐ Yukio Kurita, Governor, Fukui Prefecture, Japan
- ☐ Kazuharu Kawase, Mayor, Tsuruga City, Japan
- ☐ Shinpei Kojima, Chairman of the Preparatory Committee for the 36th JAIF Annual Conference; President, Fukui University, Japan

10:30-12:00

[Special Presentations (Morning Section)]

Chairperson: Yasumasa Togo, President, Japan Nuclear Cycle Development Institute (JNC)

Speakers:

- ☐ "Nuclear Fuel Cycle Policy of Japan"
  Yoichi Fujiie, Chairman of Atomic Energy Commission of Japan
- ☐ "Role of the IAEA in the Peaceful Use of Nuclear Power"
  Victor Mourogov, Deputy Director General, International Atomic Energy Agency (IAEA)
- ☐ "Forging ahead with Nuclear Power"
  Anne Lauvergeon, Chairman & CEO, AREVA; Chairperson & CEO, COGEMA, France

〈Lunch Break〉 (12:00-13:30)

〈Stage Drama on Nuclear Energy "Wakasa Obachan Gekijyo"
played by Female Nuclear Public Information Advisors, Kansai Atomic Industry Conference〉
(12:45-13:10)

13:30-14:30

[Special Presentations (Afternoon Section)]

Chairperson: Yoshihiko Sumi, President, Japan Atomic Power Company

Speakers:

☐ "Nuclear Power Development in Taiwan: Operational Performance and Prospects"
Min-Shen Ouyang, President, Chung-Hwa Nuclear Society

☐ "Nagoya High Court Ruling on Prototype FBR "Monju""
Yasuhisa Komoda, Deputy Director General, Nuclear and Industrial Safety Agency,
Ministry of Economy, Trade and Industry (METI), Japan

14:45-17:20

[Plenary Session]

"Strategies for Peaceful Use of Plutonium" (Presentations)

Chairperson: Masanobu Miyake, President, Fukui University of Technology, Japan

Speakers:

☐ "Significance of Plutonium Utilization from the Viewpoint of Energy Sources Debate"
Yohji Uchiyama, Professor of the Institute of Engineering Mechanics and Systems,
University of Tsukuba, Japan

☐ "From "Fugen" to "Monju""
Yasuo Nakagami, Executive Vice President, Japan Nuclear Cycle Development Institute (JNC)

☐ "The Initiative of Generation Ⅳ Nuclear Energy System and Advanced Fuel Cycle in the U.S. "
William D. Magwood, Director of Nuclear Energy, Science, and Technology,
Department of Energy, U.S.A.

☐ "The Strategy for Peaceful Use of Plutonium in France"
Jacques Bouchard, Director, Nuclear Energy Direction, Atomic Energy Commission (CEA), France

☐ "Some Aspects of Russia's Nuclear Power Fuel Cycle and Disposition of Russian Excess Weapons Plutonium"
Vladimir M. Korotkevitch, Director, Department of Nuclear Fuel Cycle, Ministry of Atomic Energy, Russia

17:30-19:00

[Reception] at Kirameki-Minato-Kan Hall

18:00-20:00

[Public Dialogue] at Plaza Bansyo

Moderator: Tomoe Igarashi, Freelance Announcer, Japan

Coordinator: Kazuhisa Mori, Executive Vice Chairman, Japan Atomic Industrial Forum

Commentators:

☐ Takashi Aoyama, Emeritus Professor, Shiga University of Medical Science, Japan
☐ Michiyo Sakamoto, Member of Women's Energy Network of Tsuruga, Japan
☐ Tokunosuke Nakajima, Former Professor, Chuo University, Japan
☐ Takehiro Hashizume, Chief Editorial Writer, Fukui Newspaper, Japan, and others

Wednesday, April 16

Fukui Session
at Phoenix Plaza

9:00-9:40

[Fukui Opening Session]

Chairperson: Fujio Shinki, President, Hokuriku Electric Power Company, Japan

Remarks:

☐ Jun-ichi Nishizawa, Chairman, Japan Atomic Industrial Forum
☐ Atsuko Toyama, Minister of Education, Culture, Sports, Science and Technology (MEXT), Japan
☐ Hiroyuki Hosoda, Minister for Science and Technology, Japan
☐ Takeo Hiranuma, Minister of Economy, Trade and Industry (METI), Japan

9:40-10:10

[Special Presentation]

☐ " What is Required of Securing Safety of Nuclear Facilities?
-Questioning Attitude and "Lookers-on See Most of the Game" "
Chairman, Nuclear Safety Commission of Japan

10:10-12:00

[Session 1]

"Sustainable Development of Human Society: Challenges in Terms of the Environment and Energy" (Presentations)

Chairperson: Akio Morishima, President, Institute for Global Environmental Strategies, Japan

Speakers:

☐ "Japan's Energy Security and Environmental Preservation"

Akira Amari, Member of the House of Representatives; Chairman of the Comprehensive Energy Policy Subcommittee of the Liberal Democratic Party, Japan

☐ "Missions that Electric Utilities Need to Accomplish for the Sustainable Development of Society"

Yosaku Fuji, Chairman, Federation of Electric Power Companies, Japan

☐ "Roles of Nuclear Power for Energy Strategy and Environment in China"

Honglin Ma, General Secretary, China Atomic Energy Authority (CAEA), China

☐ "The Environmental Problem from the Viewpoint of the Consumer"

Chiiko Inoue, Commentator on Life Information

12:20-14:10

[Luncheon] at "Tenzan" room, 3rd floor, Fukui Washington Hotel

Chair: Jun-ichi Nishizawa, Chairman, Japan Atomic Industrial Forum

Speech: "Two Kinds of Peace: Japanese Culture and Structural Reform"

Tetsuo Yamaori, Director General,
International Research Center for Japanese Studies, Japan

〈Picture Story Show on Nuclear Energy
played by Women's Energy Network of Fukui Prefecture〉 (13:40-14:05)

14:30-17:30

[Session 2]

"Improved Operations and Maintenance of Nuclear Power Plants: New Challenges"

(Panel Discussion)

Keynote Speech:

"Problems in Japan's Operational Management and Countermeasures"
Shunsuke Kondo, Professor, University of Tokyo

Panelists:

☐ Michael Comiskey, Senior Director, Member Outreach, Nuclear Energy Institute (NEI), U.S.A.
☐ Yoshihiko Sasaki, Director General, Nuclear and Industrial Safety Agency,
Ministry of Economy, Trade and Industry (METI), Japan
☐ Nils Diaz, Member, Nuclear Regulatory Commission (NRC), U.S.A.
☐ Eriko Hida, Deputy Manager, Tokyo League of Regional Women's Organization, Japan
☐ Hiroshi Matsumura, Director, Kansai Electric Power Company, Japan

Thursday, April 17

9:00-11:30
[Session 3]
"Advancing Global Programs for High-Level Radioactive Waste Disposal"
(Panel Discussion)

Chairperson: Masao Nakamura, Scientific Journalist, Japan

Keynote Speech:

" Some Lessons Learnt from an International Perspective"
Yves Le Bars, Chairman, National Radioactive Waste Management Agency (ANDRA), France

" Current Status of High-Level Radioactive Waste Disposal Program in Japan"
Kazunao Tomon, President, Nuclear Waste Management Organization of Japan (NUMO)

Panelists:

☐ Timo Aikas, Director, POSIVA Oy, Finland
☐ Torsten Carlsson, Former Mayor, Oskarshamn City, Sweden
☐ Shunya Takeuchi, Director, Nuclear Waste Management Organization of Japan (NUMO)
☐ Agneta Rising, Vice Chairman, European Nuclear Society (ENS)
☐ Yves Le Bars, mentioned above

〈Lunch Break〉 (11:30-13:00)

13:00-15:30

[Session 4]

"Here in Fukui: Let Us Think about Nuclear Energy and Radiation Used in Our Daily Life" (Panel Discussion)

Chairperson: Keiji Kanda, Director, Energy Policy Institute; Professor Emeritus, Kyoto University

Panelists:

☐ Sumie Amano, Board Member, Women's Energy Network of Fukui Prefecture, Japan

☐ Saburo Kikuchi, Executive Director, Deputy Senior Director of Tsuruga Head Office, Director of Monju Construction Office, Japan Nuclear Cycle Development Institute (JNC), Japan

☐ Itsuro Kimura, Director, Institute of Nuclear Technology, Institute of Nuclear Safety System, Japan

☐ Hideyuki Nakagawa, Dean, Faculty of Engineering, Fukui University, Japan

☐ Takehiro Hashizume, Chief Editorial Writer, Fukui Newspaper, Japan

☐ Yasuo Hirao, Former Director, National Institute of Radiological Sciences, Japan

☐ Akira Machida, Executive Director, Wakasa Wan Energy Research Center, Japan

15:40-17:00

[Gathering to Answer to Questions from the Citizens] at Phoenix Plaza, Small Hall

Moderator: Motoko Ishiyama, Freelance Announcer, Japan

Coordinator: Kazuhisa Mori, Executive Vice Chairman, Japan Atomic Industrial Forum

Commentators:

☐ Tokunosuke Nakajima, Former Professor, Chuo University, Japan

☐ Takehiro Hashizume, Chief Editorial Writer, Fukui Newspaper, Japan

☐ Hisako Yamada, Board Member, Women's Energy Network of Fukui Prefecture, Japan

☐ Agneta Rising, Vice Chairman, European Nuclear Society (ENS), and others

April 15 (Tuesday)

Tsuruga Opening Session

(9:30–10:30)

- Remarks

Remarks of Chairman of the Preparatory Committee for the 36th JAIF Annual Conference

Shinpei Kojima
Chairman of the Preparatory Committee
President, Fukui University, Japan

I would like to talk about the program planning of this 36th Annual Meeting of Nuclear Power Industry.

First of all, we should know the fundamental policy of Japanese nuclear energy, and recent attitudes of Europe, USA, and Asian countries for nuclear energy. Then we can see and consider the energy problems in the 21st century from global overview points.

The nuclear power plant 'Fugen' located in Tsuruga was just closed on March 31st of this year. 'Fugen' had used the largest amount of MOX in the world. In the very places of this Tsuruga Meeting, we have to memorize and see the distinguished results of 'Fugen',and to know the meaning of utilizing plutonium by nuclear recycling system ,and also to reconfirm the necessity of the FBR nuclear power plant 'Monju' in the near future.

In the opening session of Fukui Meeting, many ministries of the Japanese government will clearly present Japanese nuclear energy policies. Many speeches and panel discussions will give deep insights into the security of nuclear power plants and radioactive materials.

In the last session, some nuclear energy research and development agencies, universities, and a citizen group will give information on their recent efforts concerning the nuclear energy problems.

We will have two citizen-involoved sessions in Tsuruga and Fukui. The public and nuclear related circles exchange opinions and questions with each other to give precise knowledge and understanding on the security of nuclear power plants, and to develop mutual friendship.

In addition, I would like to talk about briefly the 'Fukui Prefecture Special Committee of Security Research and Check of Monju'. This committee was founded in July 2001 by the Fukui Prefecture Government, independently from the Japanese Government, in order to investigate the very security of FBR 'Monju' scientifically by many engineering scientists. This committee has been held monthly in a very open system for citizens.

[MEMO]

April 15 (Tuesday)

Special Presentations

(10:30-14:30)

Morning Section : 10:30-12:00

Afternoon Section : 13:30-14:30

Morning Section

Nuclear Fuel Cycle Policy of Japan

Yoichi Fujiie

Chairman

Atomic Energy Commission of Japan

1. Establishment of Nuclear Fuel Cycle

The Atomic Energy Commission (AEC) has declared the establishment of the nuclear fuel cycle (NFC) to be its basic policy and the most important task, since the commission was inaugurated in 1956.

The basic policy of NFC establishment as well as the importance of the MOX fuel utilization in light water reactor was fully supported by the cabinet ministers concerned, including the Chief Cabinet Secretary, the Governor of Aomori prefecture, and nuclear operators, at the recently held Nuclear Fuel Cycle Conference. However, this policy is not necessarily fully understood by the general public, and it has not yet reached the stage of gaining support on a national level.

2. Basic Policy and Actual Measures

We have so far formulated nine long-term programs, which are divided into the basic policy and the actual measures indicating the future course.

We have taken the actual measures, dealing flexibly with changes in times and conditions. It is no exaggeration to say that the main point of these measures, which were revised approximately every five years, is to indicate how to actually proceed with the nuclear fuel cycle. Even the ninth long-term program does not propose the immediate reprocessing of all spent fuel. In order to show flexibility of the policy, interim storage is included in the actual options to leave some leeway in the schedule.

3. Long-Term Program and Actual Measures

The current long-term program, unlike the previous ones, shows the whole picture and long-term perspective of nuclear energy in 21st century Japan. Here, the idea of what nuclear

energy should be is emphasized rather than the schedule. For example, when the discussion of merging two corporations began, we considered it unnecessary to revise the long-term program hastily, because this discussion was within the framework of the basic policy.

However, this concerns the basic policy, after all. Regarding the actual measures indicating the future course, we would like to discuss those related to the action plan or the operation plan, with the administrative offices in charge, operators, and municipalities, as the need arises. The important thing is not to shatter the nuclear fuel cycle, but to think and put in practice what we should do to establish the NFC.

4. Actual Problems in Establishing the NFC

The Atomic Energy Commission has divided the nuclear energy development into the following three stages.

The first stage is the realization of electricity supply through commercial nuclear power generation. The second stage is the closure of the light water reactor (LWR) cycle from the viewpoint of securing resources and reducing the environmental burden. Then the third stage is the dramatic expansion of resource utilization through the fast breeder reactor (FBR) cycle and related advanced technology, and the promotion of the environmental burden reduction. We have now entered the second stage, finishing the first stage. The tasks related to the second stage include the decision of LWR to load MOX fuel for the MOX fuel utilization in light water reactor , taking back plutonium in MOX form left in Britain and France, and the preparation for the startup of the reprocessing plant in Rokkasho village.

The nucleus of the Japanese nuclear policy is not to possess plutonium for no specific purpose in order to maintain the transparency of plutonium utilization. At the same time, the establishment of the LWR cycle is regarded as a policy of high priority, because of its contribution to the establishment of the future FBR cycle.

The Atomic Energy Commission will present the basic policy for plutonium utilization and search for the measures for implementation. The MOX fuel utilization in light water reactor is important as the starting point of the NFC policy. It is also essential to take back plutonium left in Britain and France to Japan to use it as energy sources, from the viewpoint of fulfilling the international promise made by Japan.

Role of the IAEA in the Peaceful Use of Nuclear Power

Victor Mourogov

Deputy Director General

International Atomic Energy Agency

Forging ahead with Nuclear Power

Anne Lauvergeon

Chairman & CEO, AREVA

Chairperson & CEO, COGEMA, France

A series of public debates are presently held all across France to discuss future energy choices. Following this nationwide debate, next Fall, our government will present to the Parliament its long-term orientations in that vital domain.

Energy is a global planetary problem. There is no development without access to energy. Today 6 billion human beings require each year the energy equivalent of 10 billion metric tons of petroleum. More than 80% of this energy is now supplied by burning fossil fuels: coal, petroleum and natural gas. To-morrow, we must both provide a growing world population with a decent access to energy, and limit the climate change caused by fossil energy use. There is no answer without an increase of the Nuclear Power share in the world energy mix. Nuclear power supplies today 6,5% of the world primary energy. We must do better and more if we want Nuclear Power to play its full role in allowing sustainable development.

Growth in Eastern Asia remains a reality. Signs of a renewal are more and more visible in the USA. The Russian are resuming NPP construction work and are extremely active in the export business. Europe alone constitutes a mixed bag, with good news from Finland and Sweden and bad news from Belgium. There has not been any serious reactor accident since Chernobyl, and nuclear plant availability has dramatically improved.

Today, every reactor vendor has a model ready for commercialization and complying with the most modern user requirements. A typical example is the EPR designed by Framatome-ANP : despite its very high level of safety EPR should be very competitive. Further ahead, most of the future systems considered by "GIF" are based on recycle. That is why it is important to maintain and keep improving the reprocessing and recycling technologies, as COGEMA is doing.

We are convinced that geologic storage, combined with reprocessing of the spent fuels to recycle the plutonium and properly condition High Level and Long Lived wastes is the best solution now. R&D should nevertheless be pursued internationally on advanced methods, notably partitioning & transmutation of minor actinides. In France, the Parliament must decide before 2006 which method

or methods of disposal should be implemented.

All is set for a *second souffle* of Nuclear power, if there is political will and public acceptance.

To gain this acceptance, we must improve our communication. We must explain that nuclear power is not THE solution to Mankind's energy needs, but that there is probably no solution without it. We must explain that present and future nuclear reactors are much safer than Chernobyl was. We must explain that the risks associated with high level radioactive wastes are orders of magnitude below those we accept willingly or not in our daily life. We must explain that the risks of irreversible climate change far exceed those of developing nuclear power on a grand scale.

Afternoon Section

Nuclear Power Development in Taiwan: Operational Performance and Prospects

Min-Shen Ouyang

President

Chung-Hwa Nuclear Society

The energy resources in Taiwan are very scarce, more than 95% of the fuel sources are imported from foreign countries. The nuclear power became essential because of its fuel is relatively easy to ship, compact in storage and economic in price. Construction of nuclear power plants started in Taiwan since the early seventies. Commercial operations began at Chinshan, Kuosheng and Maanshan in the years 1978, 1981 and 1984, respectively. The share of nuclear power in electricity production in Taiwan peaked at nearly 50% in 1984, and decreased gradually to about 20% in 2002.

This speech firstly gives an energy resources and power generations structure in Taiwan. Then it will describe the current status of nuclear power in Taiwan, followed by the performance of nuclear power plants in recent years. Nuclear electricity production by all units, load factors, reportable event reports, scram numbers, and low-level radioactive waste solidification statistics from year 1984 to 2002 will be presented. The trends show that improvements have been made progressively over the years. The current status of nuclear waste disposal programs will also be briefly discussed. Finally, prospects for nuclear power in Taiwan will be presented. Items encompassed are: new policies on nuclear power, laws and regulations for nuclear safety including plant commission, off-commissioning and de-commissioning. Efforts to enhance nuclear safety are also included in the discussion.

Nagoya High Court Ruling on Prototype FBR "Monju"

Yasuhisa Komoda
Deputy Director General
Nuclear and Industrial Safety Agency
Ministry of Economy, Trade and Industry, Japan

On January 27th, Nagoya high court overturned an earlier permit to construct the Monju. Reversing a low court ruling, Nagoya High Court's Kanazawa Branch said the government approval to construct the Monju in 1983 was illegal and invalid. The government can not accept this ruling, and appealed to the Supreme Court on January 31st.

Essence of the ruling shown below;

1. The ruling said the "Clearness" in the violation of the law is not indispensable for the requirement condition to invalidity of the government permit. The government insists that both " Clearness" and " Significance" of illegality are indispensable.

2. The ruling said that there were faults in the safety assessment for the sodium leakage accident in the secondary sodium coolant loop because of the regardless to new information on the corrosion of the floor liner. The government insists that the effectiveness of the floor liner in above accident can be fulfilled, and safety assessment is rational even in the case of taking the new information into consideration.

3. The ruling said that there were faults in the safety assessment for the tube failure accident in the steam generator because of the regardless to the failure phenomenon so-called high-temperature rupture type failure (the rupture of the steam generator tube caused by the inside pressure and the material weakened by the high temperature). The government insists that "Monju" has detecting systems for sodium-water reaction and the safety system, which can blow out the steam and water in the steam generator, and these system can prevent the high-temperature rupture type failure in the tube failure accident.

4. The ruling said that there were faults in the safety assessment about the energetics of the core disruptive accident (one of the beyond design base events) because of the licensing authority did not assess some of the results of sensitivity analysis. The government insists that the analytic results that were not assessed in the licensing approval are based on unrealistic input parameters for the check of simulation code, and these results are not needed to the assessment. So the safety assessment is rational.

Generally speaking, the ruling ignored the philosophy of the defense-in-depth in the nuclear safety design and based on the series of unrealistic assumption. The ruling said that license was invalid because the risk could not swept away perfectly. The government can not accept the ruling.

[MEMO]

[MEMO]

April 15 (Tuesday)

Plenary Session

"Strategies for Peaceful Use of Plutonium"

(14:45–17:20)

From the viewpoint of effectively using uranium resources, Japan has put nuclear fuel recycling at the heart of its nuclear policy. There are, however, no prospects for immediately using plutonium obtained from recycling, even as MOX fuel in light water reactors, due to social and other factors – despite many successful examples of MOX-fuel use in LWR's in other countries. Toward realization of nuclear fuel recycling in these circumstances, it is important for nuclear-related people to once again reconfirm its significance and make efforts to obtain understanding from the people nationally.

This session will reconfirm the significance of the development and roles of facilities ("Monju" and "Fugen") using plutonium in the Tsuruga area. Reviewing examples from other countries of the use of MOX fuel in LWR's – the current mainstream of nuclear fuel recycling – as well as of effective use of surplus plutonium from dismantled nuclear weapons, the session will also verify, in terms of the energy resource concept, technological development and economy, the meaning of the full use of plutonium advocated by Japan.

・Presentations

Significance of Plutonium Utilization from the Viewpoint of Energy Sources Debate

Yohji Uchiyama
Professor of the Institute of Engineering Mechanics and Systems
University of Tsukuba, Japan

There are three kinds of energy sources: fossil fuel, nuclear energy, and renewable energy. The power plant in our society uses kinetic energy of fluid, such as wind, water, and steam, to drive a turbine and transform the energy into rotary motion. Working fluid includes air, water, and steam, and the power per unit area is proportional to the cubed flow velocity of the working fluid multiplied by density. Theoretically, hydraulic power per unit working area with 100-meter effective head has 8,400 times the wind power with velocity of 20 meters per second, and ultra-high critical pressure steam has 460,000 times the same wind power. Fuel is needed to generate steam or high-temperature gas, and fossil fuel and nuclear energy are the major energy sources. Fossil fuel and nuclear energy with high energy density are indispensable to sustaining today's industrial society.

As for fossil fuel stock assessment, it is estimated that the proved reserves of petroleum are 1.05 trillion barrels, those of natural gas are 150 trillion cubic meters, and those of coal are 980 billion tons. It is expected that there also exist non-proved reserves four to five times the volume of proved reserves. The gross reserves are vast and equivalent to 36.6 trillion barrels in oil. However, if the world continues to use fossil fuel in future at the present rate, the vast reserves will be in short supply in the middle of the twenty-third century. Mankind is going to exhaust in only 500 years or so the fossil fuel, which has been accumulated by solar energy in the Paleozoic era and the Mesozoic era over the period of more than 1,000 billion years. During such a short span of time, mankind will burn all the fossil fuel, releasing nitrogen oxides, sulfur oxides, and the greenhouse gas, carbon dioxide, in the atmosphere. It is inevitable that air pollution and global warming will further advance on a global scale, if we leave things as they are. The development of nuclear power is therefore essential to solving global environmental problems and providing stable supply of energy needed by the world.

The world energy demand is steadily increasing. According to the estimates by the International Energy Agency (IEA), the world consumption of primary energy will increase at an annual rate of 1.7

percent until 2030, when the consumption will be 1.66 times the present level. The energy consumption in the Asian region is rising more rapidly than any other region of the world, due to economic growth and population increase. As of 2000, the energy consumption in Asia (except Japan) accounts for 20 percent of the world consumption. According to the estimates of the IEA, the consumption will continue to increase in future at an annual rate of 2.7 percent, reaching 2.3 times the present level, or 27 percent of the world total, in 2030. And nearly 90 percent of the consumption will be supplied by fossil fuel. Fossil fuel reserves per capita in the Asian region are the smallest in the world. The development of energy supply infrastructure in Asia lags far behind Europe and the United States. It is expected to construct the infrastructure for nuclear energy, which can substitute for fossil fuel, in addition to using more natural gas as in Western countries. The use of plutonium is also indispensable to the stable supply of nuclear energy. We should start developing technology for ensuring peaceful use and safety of plutonium now, when we still have enough reserves of fossil fuel.

From "Fugen" to "Monju"

Yasuo Nakagami
Executive Vice President
Japan Nuclear Cycle Development Institute (JNC)

Energy resources are indispensable to the sustainable development of mankind. The energy demand in the world will be inevitably increased due to the population growth and upgrading of the living standard in developing countries, etc., especially in the 21st century. The establishment of the nuclear fuel cycle and the effective utilization of plutonium and uranium is the fundamental nuclear energy policy in our country. Our country has scarce domestic energy resources.

The development of the Japan-original Advanced Thermal Reactor "Fugen" completed our first milestone at about the same time the Power Reactor and Nuclear Fuel Development Corporation (predecessor of Japan Nuclear Cycle Development Institute) was established in October 1967. The construction of the reactor was started in December 1970, and the initial criticality was achieved on March 20, 1978. Full power operation was started on March 20, 1979. Safe and stable operation for 25 years thereafter demonstrated the technical feasibility of the reactor as a power station. "Fugen" played a pioneering role of plutonium utilization as an original domestic reactor.

Seven hundred and seventy two (772) MOX (uranium-plutonium Mixed Oxide) fuel assemblies have been loaded and irradiated in "Fugen" (the total amount of plutonium: approximately 1.9t) since the initial criticality. It achieved the world's largest MOX fuel utilization as a single thermal reactor (approximately 1/5 of the world's total MOX fuel assemblies ever loaded), and it has been the world's leader in full-scale utilization of plutonium. Moreover, the following precedents demonstrated the nuclear fuel cycle in our country. One is the utilization of the plutonium and uranium recovered from the reprocessed spent fuel from the domestic light water reactors, and the other is the reloading of the plutonium recovered from the spent MOX fuels of "Fugen", resulting in the closure of the fuel cycle.

The achievement of plutonium utilization and the demonstration of nuclear fuel cycle technology in "Fugen" contributed to enhance the domestic and overseas public understanding of plutonium utilization in remarkable sense. The "Fugen" project promoted the nuclear fuel recycling technology, such as plutonium fuel development and fabrication technology or reprocessing technology. This led to the promotion of the comprehensive nuclear energy utilization technology, and it consequently established the foundation of the FBR technology development.

FBR cycle technology enhances the efficiency of the uranium utilization in several scores times. It has the potential to reduce the radioactive hazard and the radioactive stockpile (reduction of the environmental burden) by the effective utilization of fast neutrons, while producing energy. The practical use of FBR cycle technology does contribute to resolve the environmental problems, while preserving the necessary energy resources for the sustainable development of the mankind after the 21st century.

The substantial introduction of FBRs is estimated to be necessary from around 2030, based on the prediction of the nuclear energy utilization in the 21st century in our country. This estimation comes from the comprehensive analysis of the total amount of the uranium consumption, the balance of plutonium supply and demand, and the accumulation of the high level radioactive waste, etc. Commercialization of the FBR technology is considered to be necessary before that time. The goals of safety, economy, reduction of environmental burden, stability of energy supply and nuclear proliferation resistance should be presented to the public from the each viewpoint, and the development of the promising FBR technology to achieve these goals should be pursued. Moreover, the evaluation from a viewpoint of public needs and public acceptance is also significant. The R&D in JNC is under a periodic external evaluation.

The prototype Fast Breeder Reactor "Monju" is one of the assets of the mankind, which can demonstrate the prominent FBR characteristics in the nearly commercialized scale. The confirmation of fundamental performances, such as breeding ratio, etc. was and continues to be its mission. This is essential for the "prototype reactor". "Monju" should be restarted at the earliest stage possible, and the sodium handling technology should be established for that purpose. The demonstration of the reliability as a power station should be pursued simultaneously.

The earliest demonstration of the world's most advanced technology will be the next mission. (1) Adjustment of the plutonium stockpile, and (2) Incineration of transuranics, etc., are to be demonstrated as pursued in the "Feasibility Study on Commercialization of FBR Cycle Technology".

Accordingly, it is clear that the steady and continuous promotion of the R&D in "Monju" will contribute to resolution of the future problems of energy resources preservation and the reduction of the environmental burden. This will also play a part in the world's leading scientific contribution as a scientific and technological nation.

The Initiative of Generation Ⅳ Nuclear Energy System and Advanced Fuel Cycle in the U.S.

William D. Magwood

Director of Nuclear Energy, Science, and Technology

Department of Energy, U.S.A.

Strategy for Peaceful Use of Plutonium in France

Jacques Bouchard
Director, Nuclear Energy Direction
Atomic Energy Commission (CEA), France

Since two years, ten countries who believe in the future of nuclear energy are working together to design and develop future nuclear energy systems. Several promising concepts were recently identified, in a strong international consensus, with a clear output : benefiting from economics and safety assets of the second and third generation of reactors, this generation IV will enhance sustainability goals. Thus, the waste minimization and the efficient use of natural resources are among the key characteristics of these systems. In most cases, this will be synonym of spent fuel treatment, (integral) actinides recycling, fast reactor cores operation, plutonium utilization to fuel the reactors.

The overall management – actinides multiple recycling with a closed fuel cycle, and transmutation of long lived radiotoxic elements – will multiply tenfold the uranium resources, will greatly reduce spent fuel repositories, will allow the best management strategy for each kind of ultimate waste and could possibly, with transmutation, shorten the radiotoxicity in the long term period. These are, of course, key issues for long term development of nuclear energy as well as for public acceptance.

The Generation IV energy systems which will not be ready for industrial deployment before 2030 have not brushed aside the next-generation reactors. The near term reactors are Advanced Reactors which will take advantage of the current reactors experience for further improvements. Taking The European Pressurized Reactor (EPR) as an example, life time is expected to be 60 years, availability factors are increased and the electricity produced is 10% cheaper. These are clear economic achievements. Even if the attention is focused on safety issues, with a double-strategy aiming at i) reducing the probability of severe accident and ii) in this very unlikely case, limiting the impact outside the site, several improvements could be implemented regarding the fuel cycle. For instance, The EPR is assumed to manage a large range of advanced MOX fuels in order to better manage the plutonium inventory through a multi-recycling strategy.

Of course, one should not forget the present industry. The 58 nuclear reactors in operation in France are producing 75% of the French electricity, increasing the national energetic self-sufficiency to 50%, and making France one of the less CO_2 emitting country per Capita in Europe. The so important nuclear option in France has forced the country to adopt a comprehensive policy regarding the fuel cycle and the uranium/plutonium utilization. Every year, 850 t among the 1200 t of spent fuel discharged from French reactors are reprocessed, producing 100 t of MOX fuels. Currently 20 EDF reactors are loaded with MOX PWR assemblies. Regarding sustainable development, the current French recycling strategy has several major advantages. It allows a reduction of radiotoxicity inventory and volumes while insuring a safe conditioning of High Level Long Lived (HLLL) radioactive waste. MOX fuel assemblies take advantage of the energetic value of the recycled plutonium which contributes to 10% of the electricity production. Once discharged, the number of spent fuel assemblies containing Plutonium is reduced. This strategy also gives some flexibility regarding future options for both depleted uranium and plutonium utilization, in fast reactors for instance.

Some Aspects of Russia's Nuclear Power Fuel Cycle and Disposition of Russian Excess Weapons Plutonium

Vladimir M. Korotkevitch

Director, Department of Nuclear Fuel Cycle

Ministry of Atomic Energy, Russia

1. Spent nuclear fuel management in the Russian Federation

At present, Russia's nuclear industrial infrastructure has significant capacities to assure in medium-term perspective Russia's needs for storage and reprocessing of spent nuclear fuel (SNF). In line with this, the corresponding safety level is provided as for SNF management and recovered fissile materials.

Progressive advance of industrial infrastructure for rendering services in the field of storage and reprocessing of Russian and foreign NPP's SNF requires additional investments to improve technological processes and upgrade the equipment, particularly with regard to radioactive waste management. Minatom of Russia has developed specific priority projects aimed at solution of spent nuclear fuel management tasks.

In particular, in 2003 it is planned to start modernisation of the radiochemical branch of the Production Association "Mayak". Along with other tasks, this modernisation has to solve environmental problems too.

The development of the dry storage facility has been finalized to solve the problem related to SNF accumulation at NPP sites with RBMK type reactors. The implementation of these works will also allow to strengthen Russia's position in rendering services in the field of foreign NPPs' SNF management.

2. Russia's program for disposition of excess weapons plutonium

Works on disposition of Russia's surplus weapons plutonium were carried out under bilateral (between Russia and Germany, Russia and France) and tripartite (between Russia, France and Germany during the period 1998-2002) agreements.

Within the framework of cooperation between enterprises of Russia and Japan R&D works are

carried out to study the possibility of burning weapons plutonium based on vibropacked technology. This technology has been developed in the RIAR Dimitrovgrad Institute of Minatom of Russia for fabrication of MOX fuel and its burning in BN-600 reactor.

Pursuant to the United States –Russia intergovernment agreement (signed in 2000) on management and disposition of plutonium which is no longer required for defense purposes and on cooperation in this field each Party is committed to destroy 34 tons of weapons grade plutonium. The Russian Party is obliged to dispose of excessive plutonium through its conversion into MOX- fuel and its burning in existing Russian power reactors of VVER-1000 and BN-600 with the financial support of foreign counterparts.

Basic components of Russian weapons grade plutonium disposition program are as follows:

- Conversion and fabrication of MOX-fuel;
- Appropriate modifications of VVER-1000 and BN-600 reactors and their safety justification when MOX-fuel is used.

In September 2002 the United States proposed to use in Russia the project of the MOX fuel fabrication facility developed for implementing of the US program. This project was developed by the French-U.S. consortium DCS (DUKE-COGEMA-STONE) with the aim of decreasing the time gap between Russian and US disposition programs. At present, the agreements on transferring to Russia know-how and the project of the fuel fabrication are being prepared. Also joint action plan on adapting the US project to Russian requirements is under development.

To render financial assistance for Russia's disposition program of 34 tons surplus weapons plutonium declared as no longer required for defense purposes, a multilateral inter-governmental agreement is being drafted.

[MEMO]

April 15 (Tuesday)

"Public Dialogue"

(18:00-20:00)

at Plaza Bansyo

In an effort to make this conference even more open to the public, in addition to nuclear-related parties, the public will be encouraged to participate in this session and express their opinions. Given, in particular, recent developments around "Monju" and the effects of a series of data-falsification incidents at nuclear power plants, nuclear representatives and local citizens will straightforwardly exchange views on nuclear problems in Japan.

[MEMO]

[MEMO]

April 16 (Wednesday)

Fukui Opening Session

(9:00-09:40)

- Remarks

[MEMO]

[MEMO]

April 16 (Wednesday)

Special Presentation

(9:40-10:10)

What is Required of Securing Safety of Nuclear Facilities?
-Questioning Attitude and "Lookers-on See Most of the Game"

Chairman

Nuclear Safety Commission of Japan

For the last three years since I was appointed to work for the Nuclear Safety Commission, "safety" has day after day kept on hanging over my head. I feel I have never passed the time thinking of "safety" so intensely during the forty years since I began to work. Let me take this opportunity to give you some of my impressions that I have gained.

A direct conclusion that I have arrived at in seeking "safety" is that "safety doesn't exist." Safety means a state in which things are not dangerous or there is no risk. We often talk about the need to secure safety, but what must be secured is a state in which there is no risk. These circumstances remind me of two key points for ensuring safety.

First, it is to identify where a potential risk exists, how it appears and how it develops to a point where that potential gives rise to an actual danger to eliminate such a risk factor while it is as small as possible. Second, we must recognize that safety, being a state, is what always changes and is a variable for which we must look out continuously; we should not have a false sense of security. It looks like a matter of course, but we were made to realize time and time again how it is difficult in practice by the series of accidents and events we have experienced.

I have not any brain wave, but what I feel is most important is for both organizations and individuals to enhance cognitive powers for a risk. It requires us to pick up on Questioning Attitude, that is an attitude, customs and practices to question ourselves as to whether everything is fine at all times. Both organizations and employees must learn to have objectivity and foresight as a proverb says: "Lookers-on see most of the game." I firmly believe that it is a foundation for the "safety culture" that has recently and freshly been put on increasing particular emphasis internationally.

[MEMO]

April 16 (Wednesday)

Session 1

"Sustainable Development of Human Society: Challenges in Terms of the Environment and Energy"

(10:10-12:00 Presentations)

Given the prospects of population, especially in the Asian region, increasing sharply and world energy consumption doubling by the year 2050, there is a real concern about major threats to human society, including deterioration of the global environment and conflicts among countries over natural resources. In order to avoid these situations and realize sustainable social development, the nations and peoples of the world will have to act in concert with a long-term view of human society.

This session will consider how to realize the sustainable development of human society, specifically taking into account the issues of global warming and energy, which are in fact key to that realization, and will seek means by which the national government and industry can tackle the associated problems, and confirm once again the role of nuclear power.

In addition, from the viewpoint of consumers in metropolitan areas, who consume large amounts of energy and electricity, the session will discuss what each person nationally should consider, including environmental preservation and energy conservation.

・Presentations

Japan's Energy Security and Environmental Preservation

Akira Amari

Member of the House of Representatives

Chairman of the Comprehensive Energy Policy Subcommittee

of the Liberal Democratic Party, Japan

Missions that Electric Utilities Need to Accomplish for the Sustainable Development of Society

Yosaku Fuji
Chairman
Federation of Electric Power Companies

<Introduction: Energy has an important role to play in achieving sustainable development of society>

○ Energy is an indispensable commodity for the support of world development. Bearing in mind that developing countries are expected to achieve high economic growth, development of the energy supply infrastructure is the greatest challenge facing people around the world.

< Mission of Electricity Utilities in Japan >

○ Electricity utilities are engaged in critical missions to supply reliable electric power at reasonable prices, while making every effort to reduce their environmental impact as far as possible, and to contribute to the sustainable development of society.

< Major role of nuclear power >

○ The only practical key to simultaneous achievement of consistent supply and preservation of the environment in Japan is nuclear power.

○ That is why I want to emphasize the need to foster nuclear power generation and nuclear fuel recycling, in order to support the national basis of energy supply in the 21st century.

○ For that purpose, it is a challenging task how we can restore the public's lost trust in nuclear power, as well as how we can ensure the promotion of nuclear power while power supply liberalization in progress.

< Recovery of trust in nuclear power generation >

○ All electricity utilities are committed to devoting their energies to restoration of that trust, not only by complying with the law, but also by operating safely and reliably. Also, we are going to talk more with people from all across the social spectrum.

< Electric power liberalization and nuclear power >

○ We are facing an urgent need to research and develop a system and measures, which are vital to the promotion of nuclear power and nuclear fuel recycling, from the viewpoint of compatibility between power supply liberalization and public policy goals. In particular, it is crucial to promote nuclear fuel recycling.

<Closing >

○We reaffirm our determination as companies to play a prominent role in supporting society today and tomorrow, coping with various issues, simultaneously achieving energy security and meeting environmental requirements, and developing ways to supply electricity at reasonable prices.

Roles of Nuclear Power for Energy Strategy and Environment in China

Honglin Ma

General Secretary

China Atomic Energy Authority, China

The Environmental Problem from the Viewpoint of the Consumer

Chiiko Inoue

Commentator on Life Information, Japan

Basic awareness

Japan's energy consumption in the areas of consumption and traffic has increased 2.3 times in the last 30 years.

Use of various household electric appliances to improve the comforts of living has caused household electric power consumption to keep increasing. Recently, the integration of information technology in the household continues, and the level of comfort of living has been increasing.

The energy self-sufficiency rate of Japan is 20% and 4% if nuclear power generation is removed. In this state of resource scarcity, compounded by other factors such as the food self-sufficiency ratio of 40%, our living can be thought of as a house of cards when compared with other major countries.

In order to establish a sustainable standard of living to hand over to the next generation, we should work on a plan that takes into consideration protection of the global environment and balance of the economy.

< 1. Establishment of lifelines for our livelihood >

① Electricity, water, gas and food are lifelines essential for our living. There is a need to reassess the absolute safety of the supply of these lifelines.

② We need to recognize the fact that 54% of electric power supply from Kansai Electric Power Co., Inc. is obtained using by nuclear power generation.

③ Practice of energy saving in the home raises consciousness of global environmental problems and global warming problems. The field of lifelong study can also be utilized effectively.

④ Education of the proper knowledge with regard to the environment can be conducted in schools (elementary, junior high and high school). The establishment of an advanced professional level of university education in the field will prove to be an extremely significant investment in the future.

< 2. Developing a global symbiotic society >

① To put an end to ignorance, indifference and irresponsibility toward power sources and energy by large consumers (customers).

② Understanding that the bad reputation resulting from lack of proper knowledge during an accident will give rise to an enormous societal cost

③ The symbiosis is realized only if the residents and owners are appreciated for approving the construction of the nuclear power facilities on their grounds.

< 3. Placing our hopes in the hands of energy generated from nuclear power >

① From Mihama to Banpaku, where has that dream gone?

② Peaceful applications of nuclear power (medical, food-related, bacterial) and the endless challenge in assuring safety

③ The establishment of the principle of a public hearing from the beginning, together with transparency to the residents (of the grounds on which the facilities are constructed) and the responsibility of explaining to these residents at all stages

④ Anticipation of corporations to make their stance approach the needs of consumers and demand

[MEMO]

[MEMO]

April 16 (Wednesday)

Luncheon

(12:20-14:10)

at "Tenzan" room
3rd floor, Fukui Washington Hotel

- Speech
  by Tetsuo Yamaori, Director General,
  International Research Center for Japanese Study, Japan
  "Two Kinds of Peace: Japanese Culture and Structural Reform"

Two Kinds of Peace: Japanese Culture and Structural Reform

Tetsuo Yamaori

Director General

International Research Center for Japanese Study, Japan

I have a hunch that the 21st century will be a new age in terms of our thinking on war and peace. I think the time has come to renew our appreciation of the "Tale of the Heike" and to reexamine Tolstoy's "War and Peace."

Broadly speaking, history has seen two kinds of peace. The first is the state of peace represented by phrases such as "Pax Romana," "Pax Britannica" and, currently, "Pax Americana."

This is "pax" — peace — existing beneath the umbrella of overwhelming, supreme power: the ancient Romans, the British Empire, the American superpower. It is the state of peace maintained at the initiative of a "global empire." In its context, strategic terminology, such as *realpolitik* and "balance of power," is frequently used —terminology reflecting the history of this "pax." In short, it is the imposed state of being without war. For those controlled or suppressed by power, it could be a very neurotic peace.

The second type of peace, in contrast, I have long thought of as "Pax Japonica" . . . which I must certainly explain.

Let's take a look back. If we review Japanese history, we see that there were two long periods of peace. They were the more than 350 years of the Heian Era, and the 250-year span of the Edo Era. The Heian Era began when Emperor Kan'mu moved the capital to Heian (now known as Kyoto) in the year 794, and continued for nearly four centuries till the Gempei War. The Edo Era was the approximately 250 years after Shogun Tokugawa Ieyasu established his government in Edo (now Tokyo) until the Meiji Restoration in 1867.

Nothing like these extended periods of peace — near miracles, we might say — are seen anywhere else in world history: not in Europe or India or China. What made them possible? This has been my question for years.

Yet, as I have looked and tried to find an answer, I have found instead that virtually no studies deal squarely with the question. There are, in fact, so many books and studies on "revolution" and "war"; and as many views as one could want on "Pax Romana" and "Pax Britannica." But there is virtually nothing on "Pax Japonica," the remarkable peace of the Heian and Edo Eras. This is most unfortunate.

Now is the time, I think, for us to change some of our perceptions about history here in the Japanese Archipelago.

[MEMO]

April 16 (Wednesday)

Session 2

"Improved Operations and Maintenance of Nuclear Power Plants: New Challenges"

(14:30-17:30 Panel Discussion)

In Japan, with more than 50 nuclear power plants in operation, efforts and regulations to ensure safety focus currently on the soundness of equipment and facilities. It has come to be recognized, however, that ensuring safety must embrace the entirety of the operational and managerial systems associated with nuclear power generation. To realize efficient operations, it is important that mechanisms for ensuring safety work fully as intended, and that nuclear power plants accumulate a record of safe operation, based on which the confidence of residents in the siting areas and the people nationally can be regained.

This session will discuss conditions required for the continued stable and efficient operation of nuclear power plants entering the aging stage. Discussions will refer to examples in the United States, where good performance has been maintained, and consider such aspects as transparency and accountability in nuclear power operating systems in Japan, rational and scientific safety regulation, sound relationships between the public sector (promoters and regulators) and the private sector (proprietors), and operation and maintenance work.

- Keynote Speech

- Panel Discussion

Keynote Speech

Problems in Japan's Operational Management and Countermeasures

Shunsuke Kondo

Professor, University of Tokyo, Japan

Michael Comiskey
Senior Director, Member Outreach
Nuclear Energy Institute (NEI), U.S.A.

A New Approach to the Nuclear Safety Regulation in Japan

Yoshihiko Sasaki

Director General

Nuclear and Industrial Safety Agency,

Ministry of Economy, Trade and Industry (METI), Japan

Describe the outline of the regulatory reform corresponding to a series of falsifications at nuclear power plants in Japan. Moreover, describe measures to be taken for establishing and developing further scientific and rational nuclear safety regulation.

Nils Diaz

Member, Nuclear Regulatory Commission (NRC), U.S.A.

The Activities to Reduce the Anxiety and Distrust We Have Today

Eriko Hida

Deputy Manager

Tokyo League of Regional Women's Organizations, Japan

1. Our Status

Because we are consumers of electricity who live in consumption areas, as opposed to production areas, and we enjoy the benefit of electricity in our daily lives, we decided that we should take whatever little steps we could to save energy and resources on a daily basis. We have been involved in the following activities:

a.) refusal of excessive wrappings, promotion of recycling, promotion of " bring your own bags to shopping."

b.) as the regulations on free gifts were reviewed, we suggested that a better service would be a larger quantity of the product itself rather than free gifts.

c.) surveys on consumers' attitude toward refill products.

d.) surveys on global environment problems and t.v. commercials (consumers' awareness, recording).

e.) surveys on consumers' attitude toward toilet-papers

f.) studies to determine whether the catalogues of electric appliances are useful when we try to choose a product from the point of view of a green consumer, i.e. a consumer who is conscious of the preservation of green environment (comparisons of descriptions on catalogues in Japan, the U.S., the U.K., France and Germany. Survey on Japanese consumers' awareness) .

g.) survey on consumers' awareness of their consumption of electricity at home

h.) others

One important issue that we have today is how to operate the aging nuclear plants safely. This becomes particularly true when we think of the strong needs for the electricity by households, and of the reality that we cannot live without the convenience of electricity. Our group is highly interested

in the utilization of natural energy, and our position is different from so called pro-nuclear groups. But after learning of so many disparagements such as the JCO accident, and the falsification of numbers on reports, the concealment of damages, the crude treatment of the whistleblower, all of which happened last year, I, as a consumer, decided to write down the issues that I would like to discuss with you to reduce the anxiety and distrust that we feel today.

Issues to be discussed to maintain the nuclear safety are:

a) a society where rumors can cause a fatal damage.

b) a negative effect of "the safety legend."

c) the need to create data bases on accidents

*to secure the transparency for the public

*to reflect the data on technological standards

d) safety of the equipment and devices and fairness of the systems

*how to report, store and convey

*reviews on inspection methods and readiness to introduce new technologies.

*a qualification and education of inspectors,

an introduction of new licensing systems

*a system to open information

e) the risk analysis method and the government approach

f) utility companies and the deregulation of electricity market

*can a safety and environmental concern coexist with the need of efficiency when cost consciousness continues to gain more importance?

* issues of workers' accident compensation - as organizations become huge

g) issues of corporate governance - is it possible to comply with the law?

h) a system to protect whistleblowers

i) others

Hiroshi Matsumura

Director

Kansai Electric Power Company, Japan

(1) On March 14, 1970, the Japan Atomic Power Company began Japan's first commercial nuclear power generation at the Tsuruga-1 NPP. Today, a total of 52 nuclear power plants are in operation.

(2) Judged globally, nuclear power plants in Japan have achieved a very high level of operational performance, in terms both of capacity factor and reliability.

(3) Meanwhile, liberalization of power markets is proceeding, and nuclear power plants, too, must make efforts to reduce costs and improve the efficiency of management

(4) Even in those circumstances, a system to maintain and improve the high safety and reliability of operations hereafter should be established.

(5) Revisions to regulations are under consideration to ensure safe, stable operations in the future, even with societal changes such as liberalization of the power market, and utilities should embrace such revisions and adjust their systems accordingly.

(6) Problems

① Utilities should actively embrace new regulations and systems, and implement safe, efficient management of operations.

② In doing so, regulatory authorities and utilities should employ inspection methods, maintenance methods, and operation and management methods based on concepts of risk, and present and explain these to the people in a manner that is easy to understand.

③ As for items identified during inspections, there should be an analysis and evaluation of importance, and then treatment and measures thereafter should be determined. (In that, risk evaluation data and methods based on probabilistic safety assessment (PSA) should be employed.)

④ Utilities and regulatory authorities should make more data concerning the safety at nuclear power plants available to the public, allowing a better understanding than before, and should positively endeavor to explain such data.

⑤ Assuming improvements to safety and quality assurance systems, utilities should make efforts to improve capacity factors, which are below those in the United States and Europe.

⑥ In the long term, it will be necessary to integrate "safety inspections," "periodic inspections" and "periodic inspections by utilities" into an overall inspection system that will be more efficient and generate incentives

⑦ Utilities should be ready to cope with regulations stipulating the required performance of equipments and to establish rules by the private-sector which are endorsed by the regulatory authorities.

[MEMO]

[MEMO]

April 17 (Thursday)

Session 3

"Advancing Global Programs for High-Level Radioactive Waste Disposal"

(9:00-11:30 Panel Discussion)

In Japan, a law on high-level radioactive waste disposal was enacted in 2001, and the Nuclear Waste Management Organization of Japan (NUMO), the main body for implementing disposal, has started inviting public proposals of areas for preliminary investigation as disposal sites in December, 2002. In the United States, the world's largest nuclear-power-generating nation, the Yucca Mountain repository site has, in a major move, been approved. In France, construction of an underground research facility is underway. Finland plans to start construction of a geological disposal research facility in this year.

Given the stage of Japan's high-level radioactive waste disposal, this session will seek out and explore potential problems in steadily carrying out a process of selecting areas for preliminary investigation as disposal sites while simultaneously developing a national consensus. It will review paths followed toward the construction of disposal sites overseas and look at lessons learned from site-selection processes in other countries.

- Keynote Speeches

- Panel Discussion

Keynote Speech

Some Lessons Learnt from an International Perspective

Yves Le Bars, Chairman of the Board, Andra, Chairman of EDRAM,
Chairman of the NEA/RWMC Forum for Stakeholders' Confidence (FSC)

Managing high-level radioactive waste is a difficult issue encompassing both technical and political aspects. It also involves various actors, various territorial levels and various public policies. The task is painstaking, and many obstructions, retreats and failures have been encountered.

I. The important fact is that there is quite a gap between the assessment made by waste-management technicians and the perception of the public as expressed in opinion polls. In that respect, some European data and French qualitative analyses will be presented. The dangers of radioactivity are often stigmatised. Whereas we are dealing with a risk-management issue, there is still no common view on what constitutes an actual risk.

II. In the next section will be provided an overview of the respective status of several programmes throughout the world by referring as shown through the work carried out by the Association for Environmentally Safe Disposal of Radioactive Materials (EDRAM) and the Forum for Stakeholders' Confidence (FSC) of the OECD Nuclear Energy Agency (NEA). The first observation to be made is that some kind of standard procedure seems to have prevailed in most countries, including France with her Law of 1991, Sweden, Canada with her Law of 2002 and, obviously, Japan with her Final Disposal Act of 2000: a well-defined stepwise procedure prescribing alternatives, mobilising research, ensuring independent audits, creating an operator for long-term waste management under the supervision of the government, as well as a well-adapted financial system. It constitutes a major asset in order to promote public confidence by applying the following principles: a well-defined procedure, a clear structure of the actors involved and an overall behaviour based on outreach and rigour.

III. The next section will provide a review of certain features of a key step in the procedure, the site selection. Since most local populations and authorities are not very familiar with

radioactivity, it is difficult to engage into discussions with them. Emphasis should therefore be made on three essential guarantees for ensuring the support of territorial communities: first and foremost, short, medium and long-term safety; second, available opportunities for local development, and third, an open and transparent debate. In the first case, safety may be demonstrated by referring to experience and constantly updated information. In the second case, economic incentives constitute a fairness factor in the site selection process. In the third and last case, it is essential that all discussions take place in the context of an open debate and allow for the mutual apprenticeship of all partners.

In conclusion three factors must be highlighted. The examples of some municipalities show their ability to integrate either a disposal laboratory, an experimental repository or an actual repository as a positive asset in their local development. It must be underlined that technicians involved need the parallel support of local and national officials. And international outreach is most useful not only to benefit from foreign experience, but also to understand the specificity of their own programme as drafted in line with their national history.

Keynote Speech

Current Status of High-Level Radioactive Waste Disposal Program in Japan

Kazunao Tomon

President, Nuclear Waste Management Organization of Japan (NUMO)

1. Introduction

- Primary concern for ensuring energy resources in Japan
  - Importance of nuclear power generation as a major energy resource: about one-third of the total electricity production in Japan comes from nuclear power
- Final disposal of high-level radioactive waste (HLW)
  - One of the important issues to be resolved in nuclear power generation program
  - The HLW disposal issue shall be resolved by present generation since we benefit directly from our exploitation of nuclear power energy

2. Establishment of an institutional framework for implementation of HLW disposal

- Background of legislation of the "Specified Radioactive Waste Final Disposal Act"
  - May 1976: start of Japanese research and development (R&D) program of geological disposal in accordance with the decision of the Japan Atomic Energy Commission of Japan (AEC)
  - Nov.1999: the Japan Nuclear Cycle Development Institute (JNC) submitted to the AEC the second progress report which provided sound technical basis enough to move the Japanese disposal program from the phase of generic R&D into the phase of implementation
  - Jun. 2000: promulgation of the "Specified Radioactive Waste Final Disposal Act" (Final Disposal Act) which specifies requirements for site selection procedure, establishment of an implementing organization, collection of disposal funds, etc.
- Establishment of the implementation organization (NUMO)
  - Oct. 2000: "Nuclear Waste Management Organization of Japan" (NUMO) was established by private-sector initiative and authorized by the government in accordance with the Final

Disposal Act.

- Collection of disposal funds
  - The estimated cost required for implementation of final disposal of HLW generated by the year 2020: about 3 trillion yen
  - According to the Final Disposal Act, owners of nuclear power reactors are responsible to make an annual payment to the disposal fund for approximately 20 years in accordance with the amounts of electricity generated.

3. Siting process

- Selection of the repository site in stepwise manner respecting opinions of local communities
  - ~2007: selection of Preliminary Investigation Areas (PIAs) by literature survey
  - 2008~2012: selection of Detailed Investigation Areas (DIAs) among PIAs by surface-based investigation (preliminary investigation)
  - 2023~2027: selection of the site for repository construction among DIAs by detailed investigation from the surface & in an underground facility
- At the time of METI's decision-making for authorizing NUMO's site selection in each stage, opinions from mayors of municipalities and governors of prefectures shall be respected
- Commencement of open solicitation program of volunteer municipalities for selection of PIAs
  - In Dec. 19th 2002, NUMO made an official announcement on start of open solicitation program of volunteer municipalities for "areas to explore the feasibility of concerning a final repository for high-level radioactive waste (volunteer areas), as a part of selection of PIAs.

4. NUMO's Basic policy for implementation of final disposal of HLW

- Ensuring safety in all phases of HLW disposal is the top priority of NUMO
- Promoting community trust and safety
  - It is a priority of NUMO to ensure openness of decision-making throughout its implementation
  - Positive efforts will be made to communicate with volunteer communities and the public about NUMO's commitment to safety throughout the implementation of the disposal program in order to build confidence in NUMO's activities.

Development of Spent Fuel Repository in Finland – Public Confidence and Siting Problems

T. ÄIKÄS

Director Engineering

Posiva Oy, Finland

The overall programme for the management of spent nuclear fuel was commissioned in 1983 with a target to start disposal operations in 2020, but as an interim goal, should aim at site selection by the end of the year 2000. The programme did proceed to site selection on May 1999 when Posiva submitted an application to Government for the policy decision and proposed Olkiluoto site to be selected for the deep repository of the four possible candidates. The selection was based on the scientific material accumulated from 15 year's site characterization and evaluation.

The main purpose of the Government's decision was to judge whether the proposed nuclear facility is in line with the *overall good of the society*. This meant that the judgement was basically political decision making which boiled down to acceptance of geological disposal in general. The decision process was comprehensive and required positive statements of local community and authorities before Government, as well as, the Parliament could make their decisions. The process culminated in the approval of the Parliament on May 2001.

For the success in siting it has been an obvious benefit that the commitment to long-term programme has been made in an early stage after exploring strategic alternatives. This has given a common goal which all stakeholders can find important. Geological disposal has been selected first as "backup strategy" since delivering the spent fuel permanently abroad was the preferred option for a long time. This was, however, prohibited by the amendment in the legislation in 1994 and thereafter geological disposal became a preferred option.

Although the selection of Olkiluoto seems to some extent self-evident, the selection is justified only therefore that extensive knowledge, open for review, has been established. This knowledge base shows that the site represents conditions largely typical to Finnish bedrock as a whole. The knowledge base is also an evidence that the geological processes prevailing at depth can be characterized, understood and used as basis for long-term predictions. This builds trust in the

siting process and has been found important at all levels to find the implementer (and regulator) competent and credible.

Finally, it is important that local municipality benefits economically from the facility. Whether these socio-economic benefits are significant or not is to be discussed within the community for example in the EIA process. In the case of Posiva's facility the local municipality will gain increased tax revenues, as well as, improved employment.

At the moment Posiva has been successful in gaining the acceptance to go forward and go underground. This will not mean that siting process would be entirely come to an end. The next step for Posiva is the submittal of application for construction license to Government. This has planned to occur around in early 2010s and with this decision making the success is again measured. The disposal facility, consisting of an encapsulation plant and a deep repository, will be built thereafter. Posiva shall be prepared to start final disposal of spent fuel in Finland in 2020.

The Solution to the Nuclear Waste Problem Requires Safety and Public Consent Reflections from a Local Community Perspective

Torsten Carlsson

Former Mayor, Oskarshamn City, Sweden

My talk will be around three key issues:

- the safety of the repository system
- the impact on local image and socio - economy
- the importance of public consent and how it can be reached

We must admit that we are talking about an extremely hazardous material and incorrectly managed it may pose significant threat to health and safety – for us and for coming generations! I am sure to state that nobody wants that to happen in any society. A solution is therefore in everybody's interest.

The issue is then - how can make sure that a high level waste disposal is safe for 1000, 10.000 or maybe even 100.000 years - and that society it accepting this solution?

My answer is that: We must build a program firstly on hard facts and evidence - science must be the core of the program, no short cuts can ever be allowed in this endeavour and quality must always come before schedule. We must have strong, independent, active and competent regulators with resources to review and challenge the implementor programme at all stages. The regulator should be the citizens watchdog and always be a part in the national and local discussion! We must be open with all information, present it in an understandable way and allow for true influence by communities and citizens. Industry should work with them, not against them or over their head!

Final waste repositories must be sited to local communities willing to give their consent to these facilities - for many generations. Experience has shown us that without this consent the project will sooner or later be cancelled, stopped or indefinitely delayed - one way or the other.

Let me firstly state the following key issues:

- The principle of subsidiarity should be applied as a cornerstone in the strategy to develop a siting programme
- Presentation of full and understandable safety- and environmental impact assessments developed in co-operation with the local communities must form the basis for decisions
- The necessity for a democratic dialogue at an early phase between the national assemblies, government or industry applicants and the local communities and its public must be spelled out.
- The guarantee for comprehensive studies on image and socio-economic impacts and economic compensations both to the municipality and to the affected citizens must be given.

We still remember the siting of nuclear reactors that were almost without exception sited after the "DAD-principle" (DAD=Decide, Announce and Defend). Just a few decades ago the power organisations – public or industry owned – presented decisions already taken in closed rooms. - The plant will be located here – was the message.

These to a large extent already taken decisions were typically presented to us at a very late stage and it left very limited possibilities for the affected local community to influence the project constructively. Some of us with a veto could say no but most of the local communities in the world did not have this power and had to accept. Of course we must remember that decades ago the climate for these decisions was very different from what it is today. In present time with a much more sceptical attitude towards any large industrial project this practice has since long proven to be a disaster for all parties at all levels.

Even if relict practises of DAD do still exist, we have mostly through hard work succeeded to replace this method in most countries with much more openness and participation simply because it was necessary.

Today we as decision makers must accept the lessons and avoid to fall in to such decision-making again. Instead we must urge the industry to openly and fully make available to discuss its plans early.

This means much earlier than the industry thinks. We at the local level must be invited and take responsibility to participate and influence already at the earliest planning stage!

Industry must listen to and respect us as well as we must listen to and respect the industry. Industry must be ready to change their plans to accommodate the affected municipality and its public. Industry must be willing to pay neutral experts to help the local communities to develop good basis for the decision making from a local perspective.

Industry must further be prepared and accept that a no from the local community is a no! The local veto is to us in Sweden a very good base for a fair and concrete application of the principle of subsidiarity!

Shunya Takeuchi

Director, Nuclear Waste Management Organization of Japan (NUMO)

1. Commencement of open solicitation program and selection procedure of PIAs

- Commencement of open solicitation program of volunteer municipalities for selection of PIAs
  - In Dec. 19th 2002, NUMO made an official announcement on start of open solicitation program of volunteer municipalities for "areas to explore the feasibility of concerning a final repository for high-level radioactive waste (volunteer areas), as a part of selection of PIAs.
  - After receiving the application from volunteer municipalities followed by conducting the prior confirmation, NUMO will conduct a literature survey utilizing existing available information on volunteer areas.
- Outline of planned repository
  - The underground facilities will be constructed at least 300m below the surface in stable rock formation. Extent of the underground facilities required approximately 10 sq. km.
- Siting factors for the selection of PIAs
  - PIAs shall be selected considering influence of earthquakes, volcanoes, uplift and erosion, etc

2. Outreach scheme

- NUMO's basic policy for outreach scheme
  - Thinking as a member of the municipalities, NUMO will work to make regional conditions consulting regularly with municipalities and interested parties to ensuring active exchange of information.
- Expected economic ripple effects, etc
  - Economic ripple effects (in the prefecture with the municipality site; construction and operation stages (2025-2084))
    - Production inducement effect: approximately 1.7 trillion yen
    - Employment creation effect: approximately 130,000 workers
    - Fixed asset tax revenue (the municipality only): approximately 160 billion yen
  - The National Power Source Grand Program
    - Literature survey period: approximately 0.21 billion yen/year/site
    - Preliminary investigation period: approximately 2 billion yen/year/site

Agneta Rising

Vice Chairman

European Nuclear Society (ENS)

[MEMO]

April 17 (Thursday)

Session 4

"Here in Fukui:
Let Us Think about Nuclear Energy and Radiation Used in Our Daily Life"

(13:00-15:30 Panel Discussion)

In the Wakasa Bay area of Fukui Prefecture, the site of this conference, are the advanced thermal reactor "Fugen," the fast breeder reactor "Monju," and the Wakasa Wan Energy Research Center, all in addition to 13 LWR's. We might almost call Fukui the "nuclear use center" of Japan. In addition to energy sources, various nuclear technologies using radioisotopes and radiation are closely linked to the lives of the people.

This session will explore again the relationship between the general public and nuclear power, taking a look at venture businesses using nuclear technology, applications of radiation to medicine, and nuclear education. It will then discuss how the realities of that relationship – the pervasiveness of nuclear power and radiation-use in daily life — might be used to help local communities and society in general to better understand nuclear power, and then how to carry the momentum of that understanding forward.

・Panel Discussion

Let Us Consider Nuclear Energy in Daily Life from Fukui Prefecture

Sumie Amano

Board Member

Women's Energy Network of Fukui Prefecture, Japan

1. Viewpoint of a Women Living in a Prefecture Operating 15 Nuclear Power Plants

As a resident in Fukui Prefecture with fifteen nuclear power plants (NPPs) in operation to supply electricity to big cities outside the prefecture, everyone in this prefecture used to complain that nuclear power plants were dangerous and dirty. We were also annoyed by impudent opinions coming from people who use electricity lavishly in prefectures having no power plants.

So, we have studied the issues, such as "energy" and "environment", for the last ten years.

As the result of our study, we found that nuclear power is not so dangerous as you may think and that nuclear power plays an important role in "energy security" of our daily life.

It is our sincere desire that electricity consumers of other area should have proper knowledge and understanding on nuclear power plants.

2. Formation of the "Fukui Prefecture Women's Society for the Study of Energy" and its Activities

As residents of a prefecture with nuclear power plants, we officially set up Women's Energy Network of Fukui Prefecture in April 2000, for the purpose of deepening proper knowledge of energy and awareness of environmental issues, although we had already organized similar activities since 1996.

Our activities include study meetings, especially we have already held several sessions on the "plutonium usage plan in thermal reactors", technical visits, and communication parties with electricity consumers of other area. In these communication parties, we invited representatives of electric power companies and discussed the matter candidly. We have thus deepened relationships in terms of "people, goods, and mind."

The members of the society reached 350 as of now. In 2000, we established the course for training "energy advisers" and the third-term students completed the course in the fiscal year 2002.

Of those who completed the course, the first-term students tackled a mission to disseminate

knowledge on energy, and completed a fine piece of work in the shape of *Kamishibai* (picture tale show), as the fruits of their study under the guidance of Ms.Akiko Kubodera, an authority in radiation and radioactivity.

< Development of activities to disseminate what we saw, heard and studied to as many people as possible>

The picture tale show, entitled the "Story of Light and Future," presents plain explanation from the basics of energy to the mechanism of nuclear power generation so that upper-grade pupils of elementary schools can easily understand them. The show is being performed throughout Fukui Prefecture with the goal of accomplishing 100 presentations in the fiscal year 2002.

These activities were appreciated, and on February 27th, the society was officially commended by the Headquarters for Society, Economy and Productivity of Japan.

These movements may seem trivial, but we, Women's Energy Network of Fukui Prefecture, are promoting these activities as a knowledge sharing movement with the public.

3. Conclusion

In our daily life, we take conveniences for granted that we can instantly switch on lights. I think we whole people are requested to have a strong interest in the issues of energy and nuclear power, and to deal with them more seriously at educational institutions, regardless whether people live in electricity supply centers or in consumption areas.

People simply denounce "plutonium usage plan in thermal reactors" as "dangerous" time and again, although it plays important role of recycling resources. The government should explain and lead in plain words why it is necessary, since it is a national policy.

Under these circumstances, we wish that people will consider the energy issue as their own issue and discuss the matter at home with family members. Finally, we hope that children shouldering the 21st century will be proud of themselves being born in an electricity generating prefecture.

Thank you for your kind attention.

Cooperation with Local Industry, and Local Symbiosis

Saburo Kikuchi

Executive Director

Deputy Senior Director of Tsuruga Head Office, Director of Monju Construction Office

Japan Nuclear Cycle Development Institute (JNC)

In Japan Nuclear Cycle Development Institute (JNC),"the spread of research-and-development results" is positioned more clearly as business at the time of the establishment in October, 1998, the research-and-development result cultivated over 30 years or more from the Power Reactor and Nuclear Fuel Development Corporation (PNC) era is opened to a company, a university, etc., and the enterprise which aimed at that I had you utilize in a broad field is developed.

Among those, there is a "tip atomic power related technical result deployment enterprise" (hereafter, it is called a "result deployment enterprise.") as a thing aiming at cooperation with local industry. This provides a company with the patent of about 1500 cases to own, is a system which supports new product development, and covers broad fields, such as electricity, a machine, metal, chemistry, and environment, as a field. While providing a company with these patents, it is supposed that JNC will pay the half the sum (a maximum of 5 million yen) of development costs.

The result deployment enterprise was started from the 1998 fiscal year, the thing under enforcement could be included, and the contract of 29 cases is concluded in until in the whole country. Among those, they have six cases in Fukui, and nine cases in Ibaraki. As a technical field, there are most environment and waste processing relations as nine cases, and, subsequently they have become six measurement equipment-related cases.

As the example of a success in Fukui, there is "The tool for open the piping flange", "Lightweight fire extinguisher", "The tool for underwater work", "Charcoal For environmental purification", "Increase in efficiency of HESHIKO—mackerel pickled in salted rice-bran paste. "

Moreover, in new product development, when cooperation of a university is required, a company contracts a joint research contract etc. with Fukui University separately, and many cases which are promoting by cooperation of industrial, administrative and academic sectors are also seen.

In order to strengthen cooperation with local industry, while fixing a result deployment enterprise further, we want for a university to promote cooperation and to try hard to be able to utilize the result of nuclear technical development over many years in a broad field.

On the other hand, for symbiosis with reliance recovery and local, the honest measure with sincerity is continued since the sodium disclosure accident in December, 1995. We have tackled various activities, such as consciousness reform, information disclosure, inspection of an institution such as "Monju", a bidirectional dialog, and participation to a volunteer activity.

Recently new delivery form - "SAIKURU meeting " is held for the purpose of the Frank opinion exchange and a frank bidirectional dialog with the people of the prefecture about 150 times from October, 2001. And, the opportunity to carry out as part of a lesson is also increasing also to the high school student who bears the next generation. It is popular if explanation by the female public-relations team "Apple" by the in-house volunteer is also intelligible. Since the accident, the visitor of "Monju" has amounted to about 70,000 people, and is obtaining the effect for understanding promotion.

In the future, we continue efforts not to flag to an understanding and symbiosis to obtain much more reliance from you of an area.

From a Research Institute beside Nuclear Power Plants

Itsuro Kimura

Director

Institute of Nuclear Technology

Institute of Nuclear Safety System, Japan

1. Introduction

Following an accident of steam generator tube rupture at Mihama Unit No.2 in 1991, the Institute of Nuclear Safety System, Inc. (INSS) was established by the Kansai Electric Power Co., Inc. (KEPCO) in March 1992 for comprehensive study to raise up the level of the safety and reliability of nuclear power generation and to seek a harmonious relationship between nuclear power and society or the environment. As a unique research institute beside nuclear power plants, INSS has steadily obtained many fruitful research results and attracts people's attention in this area. Some topics in resent research works of INSS are introduced.

2. The Idea and the Organization of INSS

Although wholly owned by KEPCO, INSS conducts research independently from a neutral position. Based on the results of its works, INSS offers suggestions and advice to KEPCO and releases research outcomes, both in Japan and abroad, with the aim of wider contribution to the development of society.

INSS consists of two institutes, the Institute of Social Research and the Institute of Nuclear Technology, for the purpose of carrying out a broad range of research into social and human sciences as well as technical fields.

3. Research Activities and Some Topics

Considering the subject of this panel discussion, I would like to introduce the research activities and some topics of the Institute of Social Research, although I belong to the Institute of Nuclear Technology.

(1) Human Factor Research Project:

Utilizing the special features near nuclear power plants, extensive research has been carried out on prevention of human error, with a focus on safe conduct and organizational management at

the workplace. Recent topics on safety climate and engineer's moral are highly evaluated.

(2) Social Awareness Research Project:

The focus of this research and investigation is the social perception gap and misgivings regarding acceptance of nuclear power. Periodical surveys on awareness of nuclear power attract people's attention in the society. An interesting result was obtained through an investigation on how residents in Reinan District (southern part of Fukui Prefecture) perceive their quality of life. It is found that Reinan people recognize the continuation of households and the formation and maintenance of society based on shared territorial bond as symbols of the quality of life. It is also found that close human relationships developed through people's participation in community activities and associations with their neighbors are the constituents of the society based on shared territorial bond. The survey results indicate that in this society, self-realization is considered based on harmony with the society to which one belongs, rather than the achievement of one's personal desires. It is also found that Reinan people are satisfied with food, clothing and housing, but desire improvement of social infrastructure that supports education, culture and leisure.

(3) Energy Issue Research Project:

Research is carried out on people's living environment and desirable future energy sources, focusing on nuclear power as an important source of energy in modern society. Research is also conducted to facilitate the education on resources, energy and environment at schools, and now they devote themselves to develop practical model of its curriculum.

4. Nuclear Industry and Venture Business

I would like to add a message about the nuclear industry and venture business. As given by Mencius in ancient China, opportunities of time vouchsafed by Heaven are not equal to advantages of situation afforded by the Earth, and these are not equal to the union arising from the accord of Men. It seems rather difficult for venture business to jump into nuclear industry market, but I believe there is strong possibility for venture business now, because the opportunities by Heavens and the advantages by the Earth come round. I do expect that venture business related to nuclear science and engineering sets up in the area of nuclear power plants and fuel cycle plants by the union of new entrepreneurs who are trained and supported in the same area.

The Plan for Establishing the Nuclear and Energy Safety Engineering Graduate Course

Hideyuki Nakagawa

Dean

Faculty of Engineering, Fukui University, Japan

The engineering graduate school is required to train advanced technicians and bring up the "seeds" of new industries, through advanced researches taking into consideration the future technical paradigm. Namely, it is required to promptly respond to the rapid progress of industrial society, and carry out cross-disciplinary specialized training and research creating future technology ahead of the times. Fukui prefecture, where Fukui University is situated, has fifteen reactors at six nuclear power plants. Of these, fourteen units, including "Fugen," are operating and play a pivotal role in the supply/demand network of electricity and energy. Various kinds of nuclear research institutes have been set up in this area and active researches are being conducted. The people of Fukui prefecture are much more conscious of nuclear safety than the people of other prefectures. It is strongly expected that the Graduate School of Engineering at Fukui University play a role as the local university, in the revitalization of local industries through scientific and technical verification, the introduction of measures symbiotic with regional communities, and the transfer of nuclear technology to the private sector. The people of Japan and the prefecture have a growing sense of distrust in nuclear safety, especially due to a series of accident and scandals at nuclear related facilities in recent years. As a result, the academic and technical study of safety as well as the local training of advanced technicians have become an urgent task of the university. To respond to such a demand, it is insufficient to only establish the training/research institutions specialized in nuclear energy. It is important to pursue educational and research activities on "peaceful use of nuclear energy" from the viewpoint of the energy supply/demand system or network as a whole. The training and research organization for this purpose should naturally be cross-disciplinary: the integrated engineering institution effectively including the material study, the complex system, information science, environmental study, symbiotic sociology, etc. The Graduate School of Engineering at Fukui University plans to introduce a graduate course on nuclear and energy safety

engineering in the graduate program, as an independent course separate from the Faculty of Engineering or the Graduate School of Engineering. This graduate course is intended to do research on the material, information, control, electricity supply/demand, and power supply regional symbiotic system emphasizing peaceful use and safety of nuclear energy, as well as the creation of sound energy environment, and to train mature advanced technicians who will play an active role in these fields. The research will be conducted by utilizing the achievements gained in many areas of engineering, with emphasis placed on nuclear energy and its safety. At the same time, the graduate course will establish the nuclear technology development laboratory to solve technical problems, and provide students with sophisticated technology necessary for advanced technicians to lead the future nuclear related industries.

Hurdle to Comprehension on Nuclear or Nuclear Power

Takehiro Hashizume

Chief Editorial Writer

Fukui Newspaper, Japan

- Feel uneasy about nuclear power or nuclear power

- Is nuclear power truly rooted as a local industry?

- Eliminating the gap between power producing and consuming areas

- Information and education opportunities for local residents

Yasuo Hirao

Former Director

National Institute of Radiological Sciences, Japan

Akira Machida
Executive Director
Wakasa Wan Energy Research Center, Japan

The Wakasa Wan Energy Research Center is located in the Wakasa Bay Area in Fukui Prefecture, where 14 nuclear power plants are in operation, consisting of PWRs, BWRs, FBR, 'Monju' etc.
These nuclear units may well be called one of the major sources of industrial activities in the prefecture.

As a research center based in the local communities, our foundation has a privilege of utilizing the human resources and technologies concerned with energy and nuclear power which have been gathered together in this district. The roles of the center are to conduct some pioneering work on the effective use of multi-purpose accelerator mainly designed for industrial use for these researches on such as medical, manufacturing, agricultural, forestry and fisheries fields as well as research and development on effective use of energy, safety science and research, training, cooperative exchanges.
The mission assigned to the center is to contribute to the local industries not only by the pioneering work but also by the work rooted in the area, in order to contribute these fruitful results to the activation of industries and the prosperity of the region.

Also, we wish this center may provide the base for cooperative exchanges of the human resources related to these missions.
Let me indicate the items of research and development by using the accelerator, which is the most fashionable application technology of nuclear power, and by the utilization of ion beams (radioactive rays)

1) Diagnosis and therapy of cancers, and R&D on analytic techniques for the higher level improvement
2) Use of ion beams for plant breeding
3) Creation of new materials and R&D on analytic techniques on improvement of magnetic materials, semi-conductors
4) Micro analysis of traditional and cultural properties of historical value

As regards environmental researches we try to develop technologies to reduce harmful environmental discharged hormone by the use of radioactive rays and R&D on monitoring radioactivity in the ocean and environment in Wakasa Bay Area.

[MEMO]

April 17 (Thursday)

"Gathering to Answer to Questions from the Citizens"

(15:40-17:00)

at Small Hall

Seeking to help the public to better understand nuclear-related matters, this session will answer questions from general participants on presentations and discussions at the conference in Tsuruga and Fukui, as well as listen to their opinions on nuclear development and use hereafter. It will be an opportunity created specifically to exchange views.

[MEMO]

[MEMO]

List of Members of the Preparatory Committee
for the 36th JAIF Annual Conference

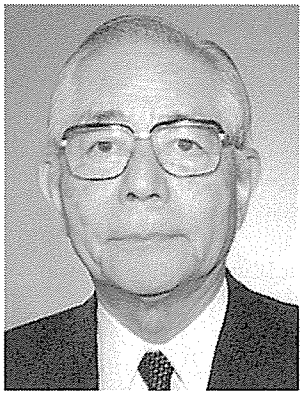
Short Biography of Chairpersons, Speakers and Panelists

Members of the Preparatory Committee for the 36th JAIF Annual Conference

Chairman :	Shinpei Kojima	President, Fukui University
Members :	Chiiko Inoue	Commentator on Life Information
	Yohji Uchiyama	Professor, Institute of Engineering Mechanics and Systems University of Tsukuba
	Mikio Emori	Chairman, Federation of Chambers of Commerce & Industry in Fukui Prefecture
	Reiko Kakuta	President, Kansai Consumer's Association; President, Osaka Branch of Housewives' Federation
	Kazuharu Kawase	Mayor of Tsuruga City
	Hatsuko Kawara	President, Fukui Conference of Women's Associations
	Keiji Kanda	Director, Energy Policy Institute; Professor Emeritus, Kyoto University
	Isami Kojima	Vice Chairman, Federation of Electric Power Companies
	Fujio Shinki	President, Hokuriku Electric Power Company
	Masakatsu Sudo	President, Fukui Medical University
	Yoshihiko Sumi	President, Japan Atomic Power Company
	Ichiro Taniguchi	Chairman, Japan Electrical Manufacturers' Association; Chairman, Mitsubishi Electric Corporation
	Yasumasa Togo	President, Japan Nuclear Cycle Development Institute
	Tokunosuke Nakajima	Former Professor, Chuo University
	Takehiro Hashizume	Chief Editorial Writer, Fukui Newspaper
	Reiko Hirayama	President, Women's Energy Network of Tsuruga
	Yohsaku Fuji	President, Kansai Electric Power Company
	Sumiko Masano	President, Women's Energy Network of Fukui Prefecture
	Akira Machida	Executive Director, Wakasa Wan Energy Research Center

	Masanobu Miyake	President, Fukui University of Technology
	Norio Morita	President, Fukui Local of Japanese Trade Union Confederation (JTUC-Rengo Fukui)
Observers:	Yuji Sakakibara	Director for Atomic Energy, Cabinet Office
	Akira Nakanishi	Director, Atomic Energy Division Research and Development Bureau Ministry of Education, Culture, Sports, Science and Technology
	Masaya Yasui	Deputy Director General, Planner for Nuclear Energy Policy Agency for Natural Resources and Energy Ministry of Economy, Trade and Industry
	Tsukasa Hirota	Deputy Director, Science and Nuclear Energy Division Ministry of Foreign Affairs
	Masahiro Hirobe	Director, Citizen Affairs Department Fukui Prefectural Government

<TSURUGA SESSIONS>
TSURUGA OPENING SESSION



Shoichiro Kobayashi

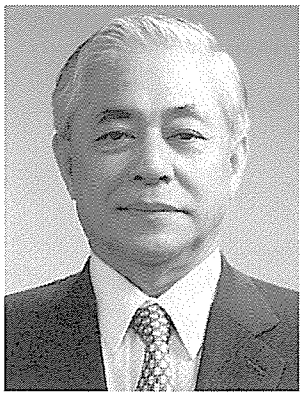
Date of Birth : July 14, 1922

Education :

Sept.	1946	BA (Economics), School of Economics, University of Tokyo

Occupational Career :

Jan.	1947	Joined Kansai Electric Supply Co.,Ltd.
May	1951	Joined The Kanai Electric Power Co.,Inc
May	1970	Member of the Board of Directors
May	1972	Managing Director
May	1974	Senior Managing Director
May	1975	Executive Vice-President and Director
June	1977	President and Director
Nov.	1985	Chairman of the Board
June	1997	Senior Adviser
July	2002	Adviser



Jun-ichi Nishizawa

Date of Birth: September 12, 1926

Occupational Career :

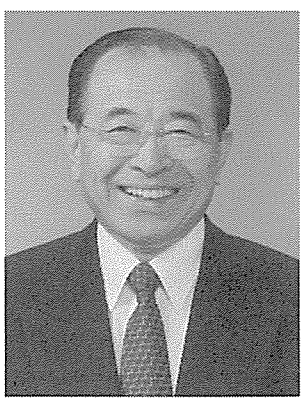
1962～1990	Professor, Research Institute of Electrical Communication, Tohoku University
1968～present	Director, Semiconductor Research Institute, Semiconductor Research Foundation
April 1990	Emeritus Professor, Tohoku University
1990～1996	President, Tohoku University
1997～present	Director, Tohoku Independent Comprehensive Training Center
1997～present	Honorary President, Miyagi University
1998～present	President, Iwate Prefectural University
June 2000～Present	Chairman, Japan Atomic Industrial Forum

Award and Conferment :

1974	Japan Academy Prize
1983	Person of Cultural Merits (Bunka-Korosha) conferred from Japanese Government
1989	The Order of Cultural Merits (Bunka-Kunsho) conferred from Japanese Emperor
2002	The First Class Order of the Sacred Treasure
2002	Establishment of IEEE Jun-ichi Nishizawa Medal

Academic Activity and Honorary Membership :

1995	Member of the Japan Academy
1996	Honorary Foreign Member of the Korean Academy of Science and Technology and others



Yukio Kurita

Date of Birth: April 6, 1930

Education :

March	1953	Graduated from Law School, Tokyo University

Occupational Career :

April	1955	Ministry of Home Affairs
July	1974	Director, Municipal Tax Division, Local Tax Bureau Ministry of Home Affairs
Sep.	1976	Director, Fixed Property Tax Division, Local Tax Bureau Ministry of Home Affairs
June	1977	Inaugurated as Vice-Governor of Fukui Prefecture
April	1987～	Inaugurated as Governor of Fukui Prefecture (4th term of office)

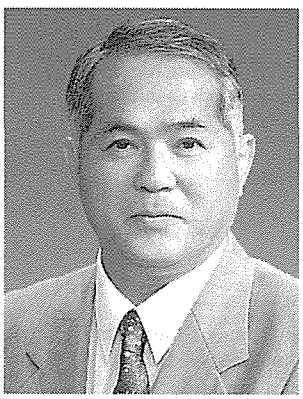
Kazuharu Kawase

Date of Birth : October 12, 1951

Education :
Graduated College of Commerce, Nihon University

Occupational Career :

April	1983	Member of Tsuruga City Council (till March 1991)
April	1991	Member of Fukui Prefectural Assembly (till March 1995)
April	1995	Mayor of Tsuruga City (up to present)
April	1995	Administrator of Fire and Rescue Services (Tsuruga-Mikata District) (up to present)
July	1997	Representative of Reinan Administrative Union (up to present)



Shinpei Kojima

Date of Birth : December 29, 1936

Education :

1959	Graduated from Department of Industrial Chemistry, Kyoto University

Occupational Career :

1969	Associated Professor, Kyoto University
1986	Professor, Kyoto University
1993～1996	Dean of the Faculty of Integrated Human Studies, Kyoto University
1997	President, Fukui University

SPECIAL PRESENTATIONS

Yasumasa Togo

Date of Birth : February 17, 1928

Education :

1951	Bachelor of Electric Engineering, University of Tokyo
1956	Completed graduate course of Engineering, University of Tokyo
1964	Doctor of Engineering, University of Tokyo

Occupational Career :

1956	Japan Atomic Energy Research Institute (JAERI)
1962	Assistant Professor, Engineering Division, University of Tokyo
1968	Professor, Engineering Division, University of Tokyo
1988	Professor Emeritus, Engineering Division, University of Tokyo
1988	Member of Nuclear Safety Commission
1993	Chairman of Nuclear Safety Commission
1998	President, Power Reactor and Nuclear Fuel Development Corporation
1998～	President, Japan Nuclear Cycle Development Institute (JNC)

Yoichi Fujiie

Date of Birth : October 17, 1935

Education :

March	1958	Graduated from Department of Science, University of Tokyo
March	1963	Postgraduate Course of University of Tokyo Received a Doctor of Engineering

Occupational Career :

June	1980	Professor, Institute of Plasma Physics, Nagoya University
Aug.	1986	Professor, Research Laboratory of Nuclear Reactors, Tokyo Institute of Technology
April	1988	Director, Research Lab. Nuclear Reactors, Tokyo Institute of Technology
April	1995	Commissioner, Atomic Energy Commission
Jan.	1998	Vice-Chairman, Atomic Energy Commission
Jan.	2001	Chairman, Atomic Energy Commission

Victor Mourogov

Born in 1938

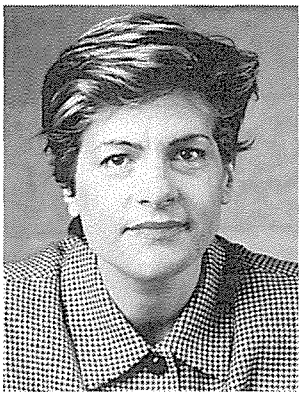
He studied Power Engineering at the Moscow Institute of Applied Physics and was a Candidate of Science at the Institute of Physical and Power Engineering (IPPE) at Obninsk. He became Doctor of Science in 1989 and Professor in 1992.

Since 1994 he is Academician of the International Academy of Information.

From 1970 to 1989 Mr. Mourogov worked as Senior Scientist at IPPE in Obninsk. Until 1992 he was Scientific Secretary of IPPE and Head of the Division.

From 1992 to the end of 1995 Mr. Mourogov was Director of IPPE, State Research Center, Chairman of the IPPE Scientific Council and Member of the Scientific and Technical Council of the Ministry of Atomic Energy of the Russian Federation.

Since January 1996, Mr. Mourogov is Deputy Director General, Department of Nuclear Energy at the International Atomic Energy Agency in Vienna, Austria.



Anne Lauvergeon

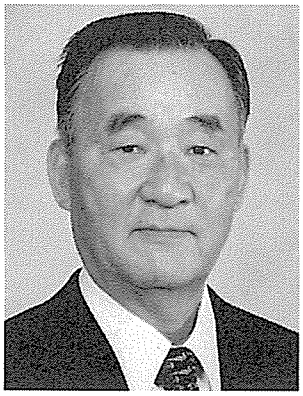
Education :
Graduated from the French Ecole Normale Supérieure (Agrégée "Physics")
Engineer of Corps des Mines

Occupational Career :

1983	Began to work at Usinor (Iron and Steel Industry)
1984	Director at IPSN (CEA, Atomic Energetic Commission)
1988	Deputy Director of the General Mining Council
1990	Advisor for Economy International Affairs at the French Presidency
1991	Deputy Chief of Staff at the French Presidency, elected as "Sherpa" to the President
1995	Partner of Lazard Frères & Cie in New York
1997	Senior Executive Vice President of Alcatel Telecom
1999	Chairperson and CEO of COGEMA

Member of Board of Directors :

1996	Péchiney
1997	Compagnie Industrielle et Financière Concorde
1998	Ecole des Mines de Paris
1998	Framatome
2001	President of AREVA's Executive Board



Yoshihiko Sumi

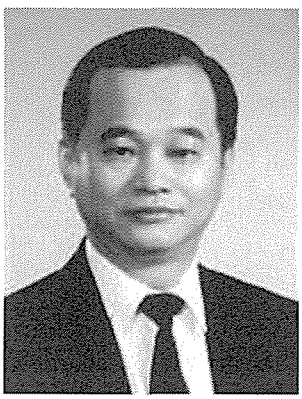
Date of Birth : November 15, 1930

Education :

March 1953 Graduated from Electrical Engineering, Kyoto University

Occupational Career :

April	1953	Joined the Kansai Electric Power Co., Inc.
June	1977	General Manager, System Engineering Department
June	1981	General Manager, Hokuriku District Office
June	1983	General Manager, Fukui Nuclear Power District Office
June	1985	Director as a Member of the Board, Fukui Nuclear Power District Office
June	1987	Director, Nuclear Operations and Nuclear Construction
June	1988	Managing Director
June	1991	Senior Managing Director
June	1993	Executive Vice President
June	1999	President of the Japan Atomic Power Company



Min-Shen Ouyang

Date of Birth : January 25, 1949

Education :

1971 BS Nuclear Engineering, Tsing Hua University
1977 MS Nuclear Engineering, Tsing Hua University
1980 MS Mechanical Engineering, University of Wisconsin-Madison, USA
1982 Ph.D., Mechanical Engineering, University of Wisconsin-Madison, USA

Occupational Career :

1973～1979 Assistant Researcher, Institute of Nuclear Energy Research
1982～1986 Professor, Department of Nuclear Engineering, Tsing Hua University
1985～1986 Director, Nuclear Science Development Center, Tsing Hua University
1986～ Professor, Department of Engineering and System Science, Tsing Hua University
1988～2000 Member, Nuclear Safety Committee, Taipower Company
1992～2000 Member, Inspection Committee on Nuclear Technology, Science Council
Jan. 2003～ Chairman of Chung-Hwa Nuclear Society (valid till Dec.2005)

Dr. Ouyang also holds high positions at atomic energy related organizations in Taipei, China.

Yasuhisa Komoda

Date of Birth : February 12, 1953

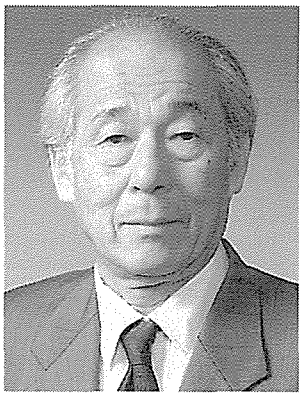
Education :

Graduated from Electrical Engineering, the Department of Engineering, University of Tokyo

Occupational Career :

July 1989～June 1992	Senior Officer for Basic Technology for Future Industries, Agency of Industrial Science and Technology (AIST), Ministry of International Trade and Industry (MITI)
June 1992～July 1994	Director, Gas Safety Division, Agency of Natural Resources and Energy (ANRE), MITI
July 1994～Sept. 1996	Representative of Washington Office, Japan Electric Power Information Center, Inc. (JEPIC)
Sept. 1996～July 1997	Director, Electric Power Technology Division, ANRE, MITI
July 1997～July 1999	Director, Electric Power Facilities Division, ANRE, MITI
July 1999～April 2001	Director, Research Administration Division, AIST, MITI
April 2001～July 2002	Deputy Director Planning Headquarter, National Institute of Advanced Industrial Science and Technology (AIST), Ministry of Economy, Trade and Industry (METI)
July 2001～present	Deputy Director-General Nuclear and Industrial Safety Agency (NISA), METI

PLENARY SESSION



Masanobu Miyake

Date of Birth : January 31, 1931
Education :

March	1954	B. Science, Dept. of Chemistry, Faculty Science, Kyoto University
March	1956	MS-Course Science, Kyoto University
Jan.	1963	Dr. Engineering, Osaka University
April	1994	Prof. Emeritus, Osaka University

Occupational Career :

Sept. 1964～April.	1966	Reserchar Overseas of Ministry of Education (Nuclear Research Center, Juelich, Germany)
June	1966	Associate Prof., Osaka Univ.
June	1972	Guest Prof., Nuclear Research Center, Juelich, Germany
April	1983	Prof.,Osaka University, Chair of Nuclear Materials
April	1994	Prof., Fukui University of Technology
Sep.	1994	Vice-president, Fukui University of Technology
April	1999	President, Fukui University of Technology

Social Activity :
- Councel of The Hokuriku Atomic Conference in Corporated with Japan Atomic Industrial Forum
- Regular Member of Atomic Energy Society of Japan
- Regular Member of American Nuclear Society

Awards :

April	1982	Technol.Prize of Atomic Energy Society of Japan

Yohji Uchiyama

Date of Birth : December 14, 1949
Education :

March 1976	Graduate in Metallurgical Engineering from the faculty of Engineering, Tokyo Institute of Technology, Bachelor of Engineering
March 1978	Graduate Master course in Nuclear Engineering from the Graduate school of Tokyo Institute of Technology, Master of Engineering
March 1981	Graduate Doctor course in Nuclear Engineering from the Graduate school of Tokyo Institute of Technology, Doctor of Engineering

Occupational Career :

April 1981	Joined the Central Research Institute of Electric Power Industry (CRIEPI)
Sept. 1985	Visiting Researcher in the Division of Advanced Power System, Electric Power Research Institute (EPRI)in the U.S. (until March 1987)
June 1990	Research fellow in Economic Research Center, CRIEPI
April 1995	Visiting Professor(concurrent post), Department of Built Environment, Graduate School of Interdisciplinary Science and Technology, Tokyo Institute of Technology (until March, 2000)
Jan. 1997	Senior Researcher of Socio-economic Research Center, CRIEPI
April 2001	Professor, Institute of Engineering Mechanics and Systems, the University of Tsukuba (up to present)
April 2003	Visiting Professor, the University of Air

Publications :

1996	"Our energy : Present and Future", Baifukan
2003	"Energy Engineering and Society", University of Air publication and others

Academic Society Memberships :
- Japan Energy and Resources Association
- Japanese Society of Mechanical Engineering

Yasuo Nakagami

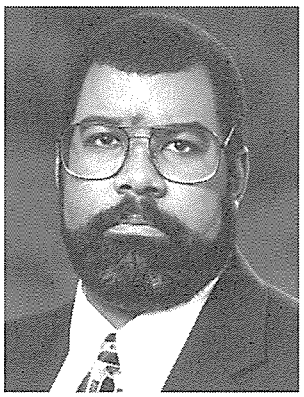
Date of Birth : December 5, 1938

Education :

1961	Bachelor of Technology, University of Tokyo

Occupational Career :

1961	Joined Mitsubishi Heavy Industries Reorganized, Ltd
1991	General Manager, Takasago Machinery Works, Mitsubishi Heavy Industries, Ltd (MHI)
1992	Board of Director & General Manager, Takasago Machinery Works
1995	Managing Director & General Manager, Power Systems Headquarters, MHI
1998	Executive Vice President, Power Reactor and Nuclear Fuel Development Corporation (PNC)
1998	Executive Vice President, Japan Nuclear Cycle Development Institute (JNC)



William Magwood

Director, Office of Nuclear Energy Science and Technology, U.S. Department of Energy

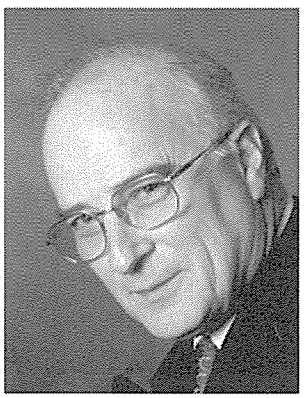
As the director of nuclear energy, Mr. Magwood is the senior nuclear technology official in the United States Government and the senior manager for all of the Office's programs.

Mr. Magwood is leading the Department's Nuclear Power 2010 initiative, aimed at building new nuclear plants in the U.S. as a key to long term energy security.

He is also leading the *Generation IV* intiative, working closely with *Generation IV* International Forum, an international collective of 10 leading nuclear nations dedicated to development of next generation advanced reactor and fuel cycle technologies by 2030.

From 1984-1994, he held technology management positions with two energy-related Organizations, Edison Electric Institute and Westinghouse Electric Corporation.

Mr. Magwood holds as a B.S. degree in physics, and a B.A. degree in English from Carnegie-Mellon University. He holds an M.F.A. degree from the University of Pittsburgh.



Jacques Bouchard

Jacques Bouchard is the director of the Nuclear Energy Division of the French Atomic Energy Commission(CEA). Engineer from the "Ecole Centrale de Paris", Doctor in nuclear physics, Jacques Bouchard joined the CEA in 1964 where he became specialist in nuclear physics for the reactors and the fuel cycle. He headed the Nuclear Reactor Division from 1990 to 1994 and was previously Director of the Military Applications Division between 1994 and 2000.

Jacques Bouchard is professor at the "Ecole des Mines de Paris" and currently President of the French Atomic Energy Society. He is also member of several board of directors of companies working in the nuclear field.

Vladimir Korotkevitch

Date of Birth : November 9, 1949

Education :

1973 Graduated from Faculty of Physics and Technique, Tomsk Politechnique Institute
Speciality : Technology of Rare, Dispersed and Radioactive Elements, Doctor of Science

Occupational Career :

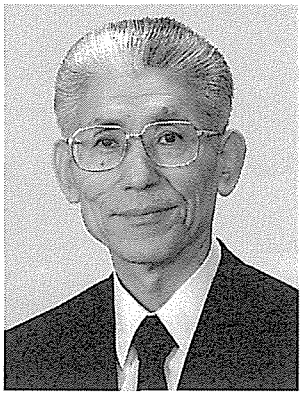
1973 Siberian Chemical Combine
2002 Head of Department on Nuclear Fuel Cycle, Ministy of the Russian Federation for Atomic Energy (Minatom)

PUBLIC DIALOGUE

Tomoe Igarashi

After she has worked as a cable broadcasting announcer, she is taking an active part.
For example, event MC/ party, wedding reception MC/ radio DJ/ TV reporter/ commercial narrator/ project, etc.
She became a freelance in October, 1998 and established private office "Pingle".

<FUKUI SESSIONS>
OPENING SESSION



Fujio Shinki

Date of Birth : February 21, 1937

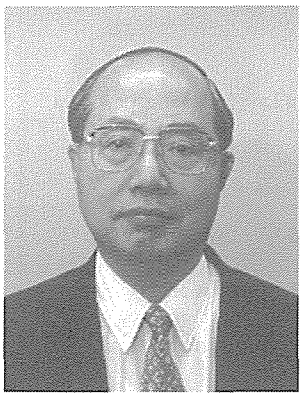
Education :

March	1959	Graduated from Department of Legal Studies, Faculty of Law & Letters, Kanazawa University

Occupational Career :

April	1959	Joined Hokuriku Electric Power Company
June	1989	Officer & General Manager in charge of Quality Control Promotion, President Dept.
Dec.	1990	Officer & General Manager in charge of Management Administration, President Dept.
June	1991	Senior Officer & General Manager in charge of Management Administration, President Dept.
June	1992	Senior Officer & General Manager, Fuels Dept.
June	1993	Director & General Manager, Fukui Branch
June	1995	Managing Director
June	1997	Executive Vice President
June	1999~	President

SESSION 1



Akio Morishima

Date of Birth : November 14, 1934
Education :
1958 School of Law, University of Tokyo, L.L.B.
1968 Harvard Law School, L.L.M.
Professional Career :
1958～1961 Research Associate, School of Law, Tokyo University, Japan
1971～1996 Professor, Faculty of Law, Nagoya University, Japan
1988～1990 Dean, Faculty of Law, Nagoya University, Japan
1994～1996 Dean, Graduate School of International Development, Nagoya University, Japan
1994 Professor Emeritus, Nagoya University, Japan
1996～2000 Professor, Sophia University, Japan
1998～ Chair, Institute for Global Environmental Strategies (IGES)
2000～ President, Central Environment Council, Environment Agency of Japan
Current Involvements :
- Member, Council of Law and Institution, Ministry of Justice
- President, Central Environment Council, Environment Agency of Japan
- Chairman, Committee on Policy-Planning, Central Environment Council, Environment Agency of Japan
- Member, Central Council of Social Health Insurance, Ministry of Welfare, Chairman, Consumer Economy Commission, Council of Industrial Structure, Ministry of International Trade and Industry
- President, Association of Environmental Law and Policy
- President, Japan Association of Environmental Sciences
- President, Japan Center for International and Comparative Environmental Law

Awards :
1995 Environmental Protection Award (Environment Agency)
1996 Global 500 Award (UNEP)
2001 Prize Elizabeth Haub

Akira Amari

Date of Birth: August 27, 1949
Education :
Mar. 1972 Graduated from Keio University, Department of Law, Major in Politics
Occupational Career :
April 1972 Entered Sony Corporation
Sept. 1974 Secretary for Masao Amari (Member of the House of Representatives)
Dec. 1983 Elected as a Member of the House of Representatives (HR)
Sept 1986 Deputy Chairman of the Diet Affairs Committee of the LDP
Nov. 1986 Director for the Diet Committee on Economy and Industry
1990 Dec. Chief Director, Diet Committee on Economy and Industry
1991 Nov. Director, Committee on Oversight of Administration (HR)
1993 July Director, International Trade and Industry Division (LDP)
1995 Sept. Chairman, Commerce and Industry Committee (HR)
1996 Oct. Re-elected to the House of Representatives
Nov. Deputy Chairman, Political Affairs Research Commission (LDP) Acting Chairman, Special Committee on Military Bases
1997 May Chief General Secretary, Research Commission on the Revitalization of Central Cities
Sept. Deputy Secretary General of the LDP
Director, Special Committee on Financial Issues and Revitalization of the Economy
1998 May Chief Director, Special Committee on Emergency Economic Measures
July Minister of Labor, Ministry of Labor
1999 Oct. Deputy Secretary General, LDP
2000 June Re-elected to the House of Representatives (6th Term)
July Chairman, Finance Committee (LDP)
2001 May : Chief Deputy Secretary General

Current Major Posts in the Diet :
- Director, Committee on Fundamental National Policies (HR)

Major Current Posts in the LDP :
- Chief Deputy Secretary General
- Chairman, Research Commission on Small and Medium-sized Enterprises
- Advisor, Research Committee on Oil, Resources and Energy
- Chairman, Subcommittee on Comprehensive Energy Policies
- Advisor, Research Commission on the Promotion of Electric Power Plant Production
- Chairman, Subcommittee on Intellectual Property Policies (Ecconomy, Trade and Industry Division)
- Advisor, Special Committee on Nuclear Fuel Cycles and others

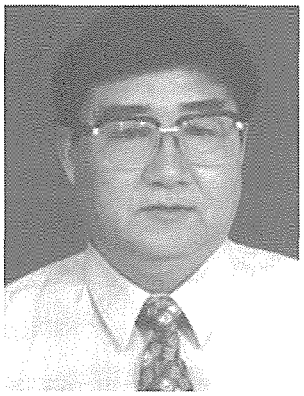
Other Current Posts :
- Chairman, Parliamentarian League for Intellectual Property Policies
- Chairman, Japan-Azerbaijan Parliamentarian Friendship League
- Secretary General, Parliamentarian League for the Tax System and Economic Revitalization and others

Yohsaku Fuji

Date of Birth : September 14, 1937

Education :
March 1960 Graduated from the Faculty of Engineering, Kyoto University

Professional Career :
April 1960 Joined The Kansai Electric Power Co., Inc.
Dec. 1977 Manager, Corporate Planning Department
June 1978 Power Engineer, South Asia Projects Department, The World Bank
June 1987 General Manager, Corporate Planning and TQC Office
June 1989 Senior General Manager
June 1993 Board Director
June 1997 Senior Managing Director
June 1999 Executive Vice President and Director
June 2001 President and Director
Sep. 2002 Chairman, The Federation of Electric Power Companies



Honglin Ma

Date of Birth : December, 1943

Education :

1970 Graduated from Harbin Engineering University

Occupational Career :

1970～April 1979 Technician, China Atomic Energy Institute

April 1979～June 1998
Deputy Director General, Department of Personnel,
Director General, Bureau of Labor and Salary,
Director General, Bureau of Material Supplying,
Director General, Bureau of Safeguard, in Ministry of Nuclear Industry
(in 1987 the Ministry of Nuclear Industry was newly reformed as the China National Nuclear Corporation)

June 1998～July 2002
Director General, Department of Administration,
China Atomic Energy Authority (CAEA)

July 2002 up to present
General Secretary of CAEA

Chiiko Inoue

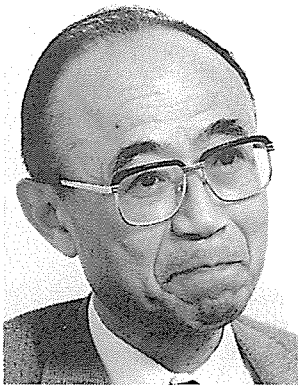
Occupational Career :
- High school Lecturer on Biology
- Editorial Staff Member
- established the Employment Seminar for Women
- established the Lifestyle Science Course
- Regional Center Lecturer, Himeji Dokkyo University

Present Post :
- Commentator on Life Information
- Chairperson, Women's Ability Reactive Program Corporation (WARP)
- Chairperson, Life, Ecology & Network (LEE NET) (Non－profit Organization)

Official Post :
- Committee Member, Osaka Broadcast Station Council
- Chairperson, Kawanishi City Women's Problem Conference
- Center Chief Adviser, Kawanishi City Man-Woman Cooparative Participation Plan
- Member, Government Offices Participation Discussion Committee
- Member, Committee on Thinking about 'Forum Energy' Social Economic Productivity Main Branch
- Project Member, Nuclear Power Committee Citizen Participation Discussion Committee

Awards :
- International Soroptimist Takaraduka Award
- Citizen Award of Distinguished Service－Takaraduka City 40th Anniversary of City Administration

LUNCHEON



Tetsuo Yamaori

Date of Birth : May 11, 1931

Education :

1956	M. Litt., Tohoku University

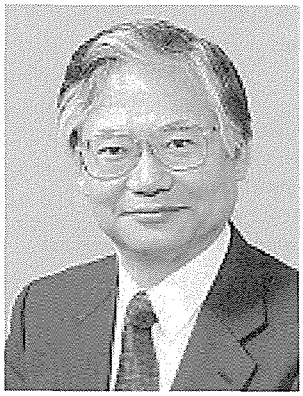
Occupational Career :

1982～1988	Professor, Department of Folk Culture, National Museum of Japanese History
1988～1997	Professor, International Research Center for Japanese Studies
1994	Professor Emeritus, National Museum of Japanese History
1997	Professor Emeritus, International Research Center for Japanese Studies
1997	Professor Emeritus, The Graduate University of Advanced Studies
1997～2000	President, Hakuho Women's College
2000～2001	Director, Kyoto University of Art & Design Graduate School
2001-present	Director-General, International Research Center for Japanese Studies

Publications :

2001	Ethics and Poetics of Modern Japanese, Iwanami Shoten
2001	The Grove around the Village Shrine is Weeping : Japanese Folk Belief vs. State Shinto, PHP Institute
2001	Passion : A Spiritual History, Shogakukan
2002	Sorrow : A Spiritual History, PHP Institute and others

SESSION 2



Shunsuke Kondo

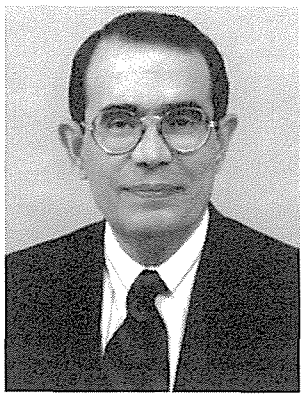
Date of Birth : July 26, 1942
Education :
1961～1965 Faculty of Engineering, University of Tokyo, Awarded the degree of BE in Nuclear Engineering
1965～1967 Faculty of Engineering, University of Tokyo, Awarded the degree of ME in Nuclear Engineering
1967～1970 Faculty of Engineering, University of Tokyo, Awarded the degree of PhD in Nuclear Engineering
Occupational Career :
1970～1971 Lecturer, Department of Nuclear Engineering, University of Tokyo
1971～1984 Associate Professor, Department of Nuclear Engineering, University of Tokyo
1984～1986 Professor, Nuclear Engineering Research Laboratory, University of Tokyo
1986～1993 Professor, Department of Nuclear Engineering, University of Tokyo
1993～ Professor, Department of Quantum Engineering and Systems, University of Tokyo
1999～2002 Director, Research Center for Nuclear Science and Technology, University of Tokyo
Membership of Academic Societies :
・Atomic Energy Society of Japan
・American Nuclear Society
・Japan Institute of Electrical and Electronic Engineers and others
Awards :
1992 Energy Forum Award for the book "Q&A on Nuclear Energy"
1993 Energy Forum Award for the book "ENERGIA"

Yoshihiko Sasaki

Date of Birth : September 18, 1944

Education :
1970 Graduated from Kyoto University, Master in Engineering

Occupational Career :
1970 Entered the Ministry of International Trade and Industry (MITI)
1984 Director, Technology Research and Information Division, Agency of Industrial Science and Technology (AIST)
1990 Director, Nuclear Power Division, Agency of Natural Resources and Energy (ANRE)
1992 Director, Technology Promotion Division, AIST
1993 Director, Electric Power Facility Division, ANRE
1995 Deputy Director-General for Technology Affairs (Research Affaires), AIST
1996 Deputy Director-General, Environment Agency
1997 Director-General, Tohoku Bureau of International Trade and Industry, MITI
1998 Deputy Director-General, ANRE
1999 Director-General for Technology Policy Coordination, Minister's Secretariat
2001 Director-General, Nuclear and Industrial Safety Agency, the Ministry of Economy, Trade and Industry (METI)



Nils J. Diaz

Dr. Nils J. Diaz is a Commissioner with the U. S. Nuclear Regulatory Commission (NRC). As a member of the Commission, he participates in the exercise and direction of the Commission's licensing and regulatory functions. His duties include policy formulation and rulemaking, as well as issuing regulations, related orders, and guidance for protection of the public health and safety, the common defense and security, and the environment.

- His specific responsibilities include licensing the construction and operation of nuclear plants and other nuclear facilities, such as nuclear fuel cycle facilities and test and research reactors, and renewal of operating licenses for these facilities, as well as oversight of their decommissioning.
- He holds a B. S. Degree in Mechanical Engineering from the University of Villanova, Havana, a M. S. in Nuclear Engineering and a Ph.D. in Nuclear Engineering Sciences from the University of Florida.
- Prior to his appointment, Dr. Diaz was Professor of Nuclear Engineering Science at the University of Florida, Director of the Innovative Nuclear Space Power Institute (INSP) - a national consortium of industries, universities and national laboratories - and President and Principal Engineer of Florida Nuclear Associates, Inc.
- He has published more than 70 refered papers on reactor kinetics and safety, instrumentation and control, imaging and non-destructive examination, advanced reactor concepts, nuclear space power and propulsion, and nuclear fuels.
- He is a Fellow of the American Nuclear Society, the American Society of Mechanical Engineers and the American Association for the Advancement of Science.

Eriko Hida

Education :

1970	Graduated from the Law Department, Saint Paul's University

Occupational Career :

1971～1972	Joined in National Federation of Regional Women's Organization
1977～	Worked as a freelance in Tokyo League of Regional Women's Organization
Present	Deputy Manager, Tokyo League of Regional Women's Organization

＊She has worked as a member of various committees related to general living which government and local government organize.

Hiroshi Matsumura

Date of Birth : May 27, 1941

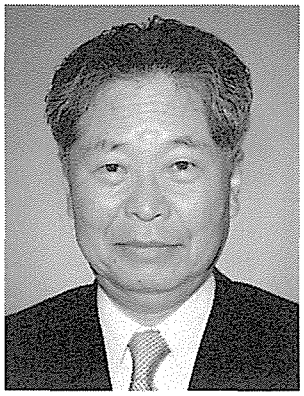
Education :

March 1965	Graduated from the Faculty of Welding and Production Engineering, Osaka University

Occupational Career :

April 1965	Joined the Kansai Electric Power Co., Inc.
Dec. 1983	Manager, Facilities Maintenance Section, Nuclear Operations Department
June 1987	Assistant General Manager, Nuclear Operations Department
June 1992	General Manager, Nuclear Projects Department
June 1995	General Manager, Ohi Nuclear Power Station
June 1997	Senior General Manager, Nuclear Power Division
June 2001	Executive Officer and Director, Nuclear Power Division

SESSION 3



Masao Nakamura

Date of Birth : April 1, 1933

Education :

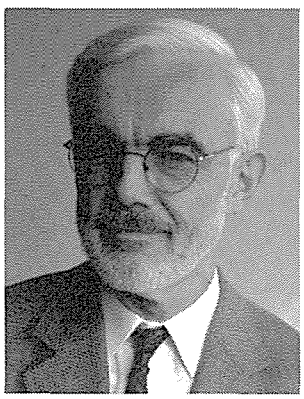
1955	Kyushu Institute of Technology

Occupational Career :

1955～1959	Engineer, the Tokyo Metropolitan Government
1959	Joined The Yomiuri Newspaper
1983～1996	Editorial Writer, The Yomiuri Newspaper
1996～	Research Advisor of Central Research Institute of Electric Power Industry (Member, Transport Technology Council), (Member, Industrial Technology Council)

Publications :

1975	Nuclear Power and Environment, ed. and co-author, The Yomiuri Newspaper Company, Tokyo
1976	Meteorological Resources, Kodansha, Tokyo
1982	Meteorological Economics, PHP Institute, Tokyo
1985	People and Technology that support Japan, co-author, Bungei Shunjusha Tokyo
1987	Columbus's Egg, Kodansha, Tokyo



Yves Le Bars

Date of Birth : July 7, 1941

Education :

1963	Ecole Polytechnique, Paris, France
1966	Engineer, Water and Forestry Engineering ENGREF, Paris, France

Occupational career :

1966～1968	Head of Irrigation and Drainage, Ministry of Agriculture on Rural Development, Madagascar
1968～1972	Rural Planning in an Interdisciplinary Approach (CEMAGREF), Aquitaine Region (Bordeaux)
1973～1975	Head of Division for Rural Planning, Directorate for Agriculture and Forestry, Savoie Department
1975～1984	Director of Urban Planning Services,City of Grenoble, France
1984～1985	Technical Councillor to the French Minister, Ministry in charge of Agriculture
1985～1997	Director General, CEMAGREF, State owned Body for Environmental and Agricultural Engineering Research, France
1997～1999	Director General, French Geological Survey, (BRGM), France
Present	Chairman of the Board, French National Agency for Radioactive Waste Management(ANDRA), France

Official Post :

- Member of the "French Water Academy"
- Chairman of the Forum for Stakeholders Confidence (OECD/NEA, Radioactive Waste Management Committee)
- Chairman of EDRAM, International Association of Managers for Environmentally Safe Disposal of Radioactive Materials

Reward :

- Knight of "Léion d'Honneur"
- Officer of "Ordre National du Méite"

Kazunao Tomon

Date of Birth : October 18, 1932

Education :

March 1956	Graduated from Department of Economics, Kyoto University

Occupational Career :

1956	Joined Tokyo Electric Power Company (TEPCO)
1987	Managing Director and Director, Sales Department
1988	Executive Director
1995	Vice President
1996	Vice Chairman, The Federation of Electric Power Companies
2000	Adviser, TEPCO
October 2000 ～present	President of Nuclear Waste Management Organization of Japan (NUMO)

Timo Äikäs

Mr. Timo Äikäs is the Director of Engineering of Posiva. The principal mission of the company is the spent fuel management of the Finnish nuclear power plants.

He graduated from the University of Turku in Finland in 1977. He holds the degree of the Master of Science in Engineering Geology.

He started his professional career as a consultant working with projects for construction, tunneling and groundwater supply both in Finland and abroad. In 1986 he was appointed the Chief Geologist of TVO power company the main task comprising the siting of the deep repository for spent nuclear fuel.

As TVO and Fortum, the owners of the Olkiluoto and Loviisa nuclear power plants, established a joint waste management company Posiva, he was appointed company's manager for georesearch in 1995.

Since 1st of January 2001 he has been in charge for engineering of Posiva as the responsible director. He has been involved with international projects such as OECD/NEA Stripa-project in 1982-1991 and SKB's Äspö Hard Rock Laboratory in Sweden since 1992. He has also participated actively in the work of NEA between 1989-2000.

Torsten Carlsson

Date of Birth : November 23, 1942

Mayor in Oskarshamn : March 1988-December 1992.

Worked in the car industry about 13 years.
Worked more 15 years in different school as a school curator, teacher and head master of school.

Shunya Takeuchi

Date of Birth : April 7, 1943

Education :
Graduated from the Faculty of Law, University of Tokyo

Occupational Career :

1966	Joined The Kansai Electric Power Co., Inc.
1984	Section Chief, Nuclear Planning Department
1990	Deputy Project Manager, Nuclear Planning Department
1992	Project Manager, Nuclear Planning Department
1999	General Manager in Charge of HLW, The Federation of Electric Power Companies
2000	Director and General Manager, Nuclear Waste Management Organization (NUMO)
2002～	Director, NUMO

Agneta Rising

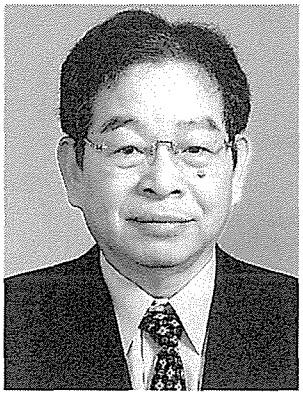
Current position :
- Director, Nuclear Business Development, Vattenfall Generation.
- Appointed specialist, at the highest level within the Vattenfall Group, in the area of nuclear energy and environment.
- Working site : Ringhals Nuclear Power Plant

President of :
- Vice Chairman of World Nuclear Association (2002-)
- Vice President of European Nuclear Society (1998-1999, 2002-)
- Chairman of the Swedish Nuclear Energy Committee (2002-)

Member of :
- Board of management at World Nuclear Association
- Board member of European Nuclear Society
- Board member of Women In Nuclear Global
- Member of the Analysis Group at Nuclear Training and Safety Centre

Professional records :
- Auditor for fulfilment of environmental criteria for companies in different parts of the nuclear fuel cycle that might be considered supplier to Vattenfall. Participating in the auditing team as expert in the radiological protection area for: employees, working environment, emissions, environmental impact, emergency and education.
- Participating in media interviews and debates, in newspapers, TV and radio programmes frequently in Sweden and several times internationally in Australia, Argentina, Canada, Japan, Poland and South Africa.
- Teacher for many professional groups in environmental issues connected to the nuclear fuel cycle, radioactive releases from nuclear power reactors during normal operation and accidents: trainees, reactor operators, nurses, radiological protection personnel, maintenance personnel etc.
- Lecturer for different external groups, such as teachers, politicians, students, universities, emergency personnel and associations.

SESSION 4



Keiji Kanda

Date of Birth : 1938

Education :

1966 Tokyo Institute of Technology (PhD in Nuclear Engineering)

Occupational Career :

Present
- Director, Japan Energy Policy Institute
- Professor, Musashi Institute of Technology
- Research Adviser, Central Research Institute of Electric Power Industry
- Professor Emeritus, Kyoto University
- Special Adviser, Atomic Energy Commission
- Special Adviser, Nuclear Safety Commission

Sumie Amano

Board Member, Women's Energy Network of Fukui Prefecture

After working as a staff of the Fukui prefecture, she is taking an active part in various women's groups such as Women's Energy Network of Fukui Prefecture.

Saburo Kikuchi

Date of Birth : May 9, 1941

Education :

1965 Graduated from Department of Nuclear Engineering, Faculty of Engineering, University of Kyoto

Occupational Career :

1965 Joined the Atomic Fuel Corporation(AFC)
1967 AFC was reorganized into Power Reactor and Nuclear Fuel Development Corporation (PNC)
1992 Director, Policy Planning Division, PNC
1995 Director, Monju Construction Office, PNC
1997 Executive Diredctor, PNC
1998 Executive Director, Deputy Senior Director of Tsuruga Head Office, Japan Nuclear Cycle Development Institute(JNC)
2001 Executive Director, Deputy Senior Director of Tsuruga Head Office, Director of Monju Construction Office, JNC

Itsuro Kimura

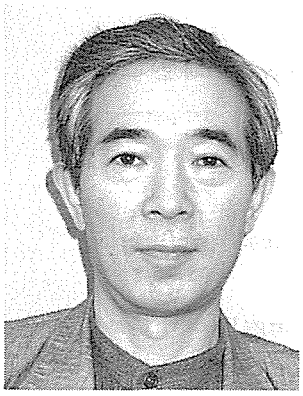
Education :

1960	M.E., Nuclear Engineering, Osaka University
1973	Dr. Engineering, Kyoto University

Occupational Career :

1961～1999	Staff in Kyoto University, Research. Reactor Institute and Faculty of Engineering, Professor from 1978
1997～1999	Vice President, Atomic Energy Society of Japan
1999	Professor Emeritus, Kyoto University
1999～	Director, Nuclear Technology Institute of Nuclear Safety System, Inc.
2000～	Member of Science Council, Japan
2001～	Chairman, Sp. Committee on Nuclear Safety Research, Nuclear Safety Commission

Speciality : Neutron Engineering, Reactor Physics, Nuclear Safety, Radiation Measurement



Hideyuki Nakagawa

Date of Birth : November 14, 1942

Education :

March, 1966	Bachelor of Science in Physics, Kyoto University
March, 1968	Master of Science in Physics, Kyoto University
March, 1973	Doctor of Philosophy in Science, Kyoto University

Occupational Career :

April 1972～March 1974
Full-Time Lecturer, Department of Electronics, Fukui University
April 1974～July 1991
Associate Professor, Department of Electronics, Fukui University
August 1991～March 1999
Professor, Department of Electronics, Fukui University
April 1999～Present
Professor, Department of Electrical and Electronics Engineering, Fukui University

Research Field :
Solid State Physics
Solid State Electronics

Takehiro Hashizume

Date of Birth : July 13, 1942

Education :
Graduated from the Faculty of Commerce, Keio University

Occupational Career :

1967	Joined Fukui Newspaper
1986	Chief Editor, Editorial Department, Tokyo Branch
1988	Manager, Department of Politics and Economics
1992	Full-time Editorial Writer
1993	Head of Takefu Branch and Editorial Writer
1997	Associate Chief Editorial Writer
1998	Chief Editorial Writer

Yasuo Hirao

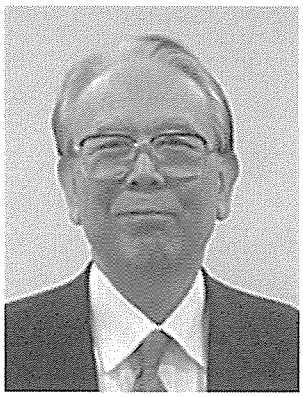
Date of Birth : September 1930

Education :

Mar.	1953	Graduated from Faculty of Science, Osaka University

Occupational Career :

Aug.	1955	Assistant of Faculty of Science, Osaka University
Feb.	1961	Associate Professor of Faculty of Science, Osaka University
April	1967	Professor of Institute of Nuclear Study, University of Tokyo
May	1987	Research Director, National Institute of Radiological Sciences
Dec.	1993	Director-General, National Institute of Radiological Sciences
Mar.	1997	Member of Advisory Board, National Institute of Radiological Sciences
April	1999	Executive Director, Association for Nuclear Technology in Medicine
May	2000	President, Japan Chemical Analysis Center



Akira Machida

Date of Birth : March 30, 1929

Education :

March 1950	Graduated from Electric Engineering Dept., Meiji Institute of Technology (presently organized as Kyushu Institute of Technology)

Occupational Career :

1950	Joined the Sumitomo Coal Mining Co.
1961	Joined the Japan Atomic Power Co.(JAPC)
1981	Head, Tsuruga Power Station, JAPC
1987	Member of Board of Directors and Deputy General Manager of Power Generation Headquarters, taking the responsibility for Tsuruga Area
1993	Senior Advisor, JAPC
1994	Director General of the Foundation of the Wakasa Wan Energy Research Center (up to present)
2002	Consultant of JAPC

Award :

1998	Award for the Services in respect of Nuclear Safety from the Minister in charge of Science and Technology Agency

Gathering to Auswer to Questions from the Citizens

Motoko Ishiyama

Occupational Career :

1993	Joined an advertising agent and took an active part in events and ceremonies in Fukui area as a MC.
1994～	Reporter in TV public relations program
1998	Retired from the agent and now taking an active part as a freelance.

＊She has experienced TV reporter, commercial narrator and MC for various events.

http://www.jaif.or.jp/

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