An Agenda for Peace Research in Japan after 3/11

Ikuro Anzai

Good morning ladies and gentlemen. Welcome to Japan, welcome to Kyoto, and welcome to Ritsumeikan University.

My name is Ikuro Anzai, Honorary Director of The Kyoto Museum for World Peace of Ritsumeikan University. As I retired from Ritsumeikan University last March at the age of 71 years old, I established my personal office named Anzai Science & Peace Office, and plan to carry out a variety of activities for disseminating scientific ways of thinking about and building for a more peaceful future.

At 14:46 on 11 March 2011, a tremendously destructive earthquake occurred in the north-east part of mainland Japan, depriving approximately 28,000 people of their lives. More than 300,000 people took refuge from the quake, the following tsunami, and radiations originating from damaged nuclear power stations in the area. The magnitude of the quake was estimated to be 9.0, the biggest in the modern history of Japan. The earthquake was named “The Great East Japan Earthquake”, which was more than 11,000 times greater than the New Zealand Earthquake in Christchurch on 22 February 2011, and 45 times as great as the 1923 Great Kanto Earthquake in the Tokyo area which killed approximately 140,000 people.

When I was told about the occurrence of this serious nuclear accident for the first time that evening, I felt very sorry for not having been able to prevent such a catastrophe, although I am a specialist in radiation protection who has been strictly criticizing governmental nuclear power policy since 1967 for more than 40 years. As a scientist who has been involved in the field of nuclear science and technology, I was ashamed of my incapacity for not having been successful in persuading our government and the people of Japan about the risks of nuclear power generation, such as the accident which happened in Fukushima.

I originally graduated from the University of Tokyo in 1964 as one of the first students of the Department of Nuclear Engineering in Japan. My graduation paper at the age of 23 was on the investigation into preventive measures against severe nuclear accidents although there were no nuclear power plants in this country at that time. As is well known among Japanese people, the 1960s began with the revision of the U.S.-Japan Security Treaty. This agreement deeply involved Japan in the Vietnam War by offering the U.S. use of many military bases throughout the nation, especially in Okinawa. In addition to various new types of weapons such as the pineapple bomb, the ball bomb, the nail bomb, and defoliants, the U.S. military even had a plan to use hydrogen bombs, named B43, in Vietnam. Training for the dropping of these bombs was held in Okinawa. One of the mock-up B43 bombs used for training is now exhibited at The Kyoto Museum for World Peace, Ritsumeikan University.

The 1960s was also the period when the Japanese government was promoting a so-called “income-doubling policy” of rapid economic growth, which resulted in incidences of serious public harm...
such as industrial accidents, poisoning of mass-produced medical drugs, etc. Many people including workers, teachers, researchers, engineers, mothers, youth, and so on, were beginning to become aware of the social responsibility of corporations, technologists, and scientists. In 1965, a scientists’ organization named the Japan Scientists Association was established for the development of science based on the principles of independence, democracy and harmony. The association was affiliated with individual researchers and educationalists in the fields of not only natural science but also social science and human science. I joined the association in 1966, and became one of the board members responsible for the activities of watching governmental nuclear power policy. I learnt much more comprehensively about nuclear issues, not only about the scientific and technological aspects but also the political, economical, social and cultural aspects of nuclear power policy. I was also deeply educated by people in the local communities who invited me to their lecture meetings about nuclear safety issues, and threw at me a large variety of questions that were far outside my scientific field but vitally important for the life of their community. These questions were extremely difficult for me to answer at that time. A first and very significant opportunity came to me in 1972, 39 years ago, when I was requested to make a keynote speech at the first symposium on nuclear power generation organized by the Science Council of Japan (JSC), which is sometimes referred to as the parliament of Japanese scientists. JSC was substantially the official representative organization of Japanese scientists, and 210 members of JSC, 30 scientists in 7 different academic fields, were elected by a direct vote of about 300 thousand scientists all over Japan. I was 32 years old at that time, and it was very exceptional for a young scientist like me to be able to have such an opportunity to make a keynote address about such an important issue.

I proposed six fundamental check points about the healthiness or unhealthiness of Japanese nuclear power policy, which were (1) the independence of a national energy policy, (2) development not for economic growth but for safety first, (3) a national nuclear power policy that would not devastate the development policies of local communities, (4) the prevention of military use of nuclear energy, (5) safety assurances for the lives of nuclear power plant workers and residents, and proven safety measures against severe accidents, and (6) democracy of nuclear power administration. These check points functioned for some time as leading principles for the anti-nuclear power movement in Japan in the 1970s.

The next year, in 1973, I was invited to the National Diet as one of ten scientists in the field of nuclear science and technology who were requested to state their opinions and viewpoints about national nuclear power policy. I took this opportunity to sharply criticize governmental policy. I was then an assistant lecturer working for the Department of Radiological Health, in the Faculty of Medicine of the University of Tokyo, which is a national university. I was a national government employee who nevertheless strictly criticized national nuclear policy, which resulted in my experiencing a variety of harassments in my academic life, which I will introduce to you later.

In September of the same year, I became deeply involved in the anti-nuclear power movement in Fukushima together with the people residing in the vicinity of the nuclear power plants. The Government held a public hearing regarding Fukushima Nuclear Power Plant No. 2, which was the first official public hearing about nuclear power generation ever organized in Japan. But it was a typical example of so-called “Yarase” in Japanese, which means a fake or insincere meeting. The majority of speakers and the audience of the public hearing were intentionally chosen from among the people who agreed with inviting nuclear power plants to Fukushima. Nevertheless, I collaborated with other scientists, lawyers and the people in the local community to send our delegates to the public hearing to raise questions about risks of nuclear power and to clarify the unhealthiness of the national nuclear policy. I myself had a chance to make a speech there by the efforts of the anti-nuclear residents who nominated me as a delegate speaking for them. However, the most astonishing thing I experienced there was a speech made by a pro-nuclear woman who was sent from the local community in the vicinity of Fukushima Nuclear Power Plants which are now in crisis. She said, “We need not fear mal effects of nuclear radiation, because, in the 1973 All Japan Senior High School Baseball Tournament, the championship was gained by the high school baseball team from Hiroshima, the A-bombed city, where, it was once said, no grass or trees would grow for 75 years.” She seemed to suggest
that radiation is not so harmful as actually feared by referring to the remarkable vitality of the young people
who had grown up even in an area devastated by a nuclear weapon. Although it was very sad for me to
witness such unscientific storytelling, unfortunately it had some effect on the public acceptance of nuclear
power.

Now, let me introduce a brief history of nuclear power development in Japan.

Immediately after the end of the Pacific War, electric power in Japan was dominantly generated by
hydraulic power plants, and there was only one electric power company named “Japan Electric Power
Generation and Supply Company”. Japan was virtually ruled by the U.S. Occupation Army who adopted an
administrative policy to rule Japan not directly but indirectly through the Japanese Government with
Emperor Hirohito as a nominal symbol of the unity of the Japanese people. In 1951, the U.S. dismantled
the Japan Electric Power Generation and Supply Company into nine regional power companies such as
Tokyo Electric Company, Kansai Electric Company, and so on. It was done in the name of the
democratization of Japan’s economic system by disorganizing the so-called “Zaibatsu”, which means
intensive financial combines. But the real strategic intention of the U.S. was to make Japanese electric
power production dependent upon the U.S. For instance, Kansai Electric Company was limited to serve the
Kansai area covering big cities such as Osaka, Kobe and Kyoto. These cities needed vast amount of electric
power in the process of reconstruction in the postwar period, but Kansai Electric Power Company did not
possess enough hydraulic power resources within its territory which inevitably made the company
dependent upon thermal power plants which can be built near an area which consumes much electric
power. In the earlier stage, a considerable amount of coal produced in Japan was used for thermal power
generation, but the fuel was gradually switched to petroleum which drastically and rapidly rendered Japan
dependent on the U.S. energy strategy. Nuclear power development in Japan followed this same line, with
Japan accepting the offer of nuclear technology from the U.S. and introducing nuclear power plants
originally developed in the U.S.

On the other hand, Japan is the only nation that has experienced nuclear holocausts by the U.S. atomic
bombing on Hiroshima and Nagasaki in 1945. More than 300,000 people were driven to death by the use of
these classical nuclear weapons. But the international community were denied the opportunity to
understand the terrible damage and aftereffects of the atomic bombings because the U.S. forbade writing
reports and sending photos about the tragedy by press code and news censorship, and restarted nuclear
testing from July 1, 1946. Three years later, in 1949, the U.S.S.R. succeeded in developing a plutonium
bomb, which motivated the U.S. towards the development of a hydrogen bomb. On March 1, 1954, a
Japanese tuna fishing boat, named “Lucky Dragon”, was exposed to lethal levels of radioactive fallout
produced by a U.S. hydrogen bomb test carried out on the Bikini Atolls, the detonation yield of which was
15 megatons, five times as great as the total yield of bombs used in the World War II including the two
atomic bombs dropped on Hiroshima and Nagasaki. Seven years later in 1961, the U.S.S.R. conducted a
hydrogen bomb test nicknamed “Tsari Bomba” of 50 megatons, 17 times greater than all the bombs of
World War II. The 1950s and 60s were periods when the U.S. and U.S.S.R. were in the midst of a nuclear
arms race based on the strategic policy of nuclear deterrence and the acquisition of a balance of power,
which finally resulted in a policy known as "Mutually Assured Destruction" abbreviated as MAD.

The Japanese people activated an anti-nuclear movement in 1954, ignited by the U.S. hydrogen bomb test
in Bikini Atolls on March 1. Two days after that, Japanese conservative parties, with the initiative of
Yasuhiro Nakasone, later Prime Minister of Japan, hastily passed a budget of 235 million yen in the Diet
for building a nuclear reactor. The figure 235 came from uranium-235. One year before, Nakasone took
part in a seminar held in Harvard and had an idea to promote an “Atoms for Peace” project in Japan in
cooperation with the U.S. Then, Matsutaro Shoriki, owner of the Yomiuri Newspaper Company, launched
a series of traveling expositions to popularize the possibility of the peaceful uses of nuclear energy. I
myself had a chance to see one of these expositions in Tokyo in 1959, where a genuine nuclear reactor was
exhibited in the middle of the Tokyo Metropolis.
But it is significant to know that the first practical nuclear power plant of 5,000 kW was built and went into operation in 1954 not by the U.S. but by the U.S.S.R. in Obnisk near Moscow. At that time, the U.S. Atomic Energy Act was prohibiting private enterprises from taking part in nuclear energy exploitation until its revision two months after the Soviet success in practical nuclear generation. The U.S. hastily developed nuclear power generation by making use of a nuclear reactor system developed for submarines, and managed to operate the Shipping Port Nuclear Power Plant in 1957. In that year, a report named WASH-740, titled “Theoretical Possibilities and Consequences of Major Accidents in Large Nuclear Power Plants”, estimated the possible effects of a “maximum credible accident” at 3,400 deaths, 43,000 injuries and property damage of 7 billion dollars, more than double that of Japan’s national budget in those days, which seemed to be too serious for a private electric power company to cope with. About half a year later, The Price-Anderson Nuclear Industries Indemnity Act was legislated, usually referred to as the “Price-Anderson Act”, by which private companies can be indemnified for any claims above approximately 12.6 billion dollars (as of 2011). This Act was considered necessary to create an incentive for private nuclear power production. Four years later, a similar act named “Act on Contract for Indemnification of Nuclear Damage Compensation” was legislated in Japan. It is obvious that the nuclear power industry cannot survive such catastrophic situations without the aid of the nation.

In Japan, this connection between the government and the electric power companies was further strengthened by involving local government. In legislating the “Act on Tax for Promotion of Power-Resources Development” it brought a vast amount of special subsidies, up to several billion yen for 3 years, if a local government accepts a plan to build an electric power plant. Every contractor must pay about 5 dollars (375 yen) per 1,000 kW-h of electric power consumption, creating about 50 billion dollars of tax income every year. The local community can be blessed with a special subsidy for three years, but infrastructures constructed during the period require persistent funds for maintenance, thereby more nuclear power plants are apt to be invited.

In addition, residents in the local community concerned were also mobilized to invite nuclear power plants. For example, in Futaba District, Fukushima Prefecture, where the nuclear disaster is now going on, a residents’ group named “Organization for Building a Bright Futaba District” was formed in early 1970s, which even put up a poster saying “Let’s Promote Construction of Nuclear Power Plant by Our ‘Power’ and Open a Way to Build an Affluent Futaba District”. People in the local communities concerned were thus involved in a national mobilization structure for nuclear power.

Needless to say, many specialists in the field of nuclear engineering were officially requested to authorize the governmental judgment about the safety of nuclear power generation. Journalism could not play a sufficient role for criticism, and rather functioned as disseminators of illusions and mythical fallacies that nuclear power generation is safe and economical.

It is sometimes said that nuclear power generation in Japan has been promoted by a “pentagon” consisting of the central government, the nuclear power industry, local governments, specialists, and journalists. I personally feel that residents’ organizations inviting nuclear power plants to local communities should be added to this “pentagon”, thereby forming a “hexagon”, which is akin to the national mobilization structure that was constructed in war time. This hexagon forms a so-called “nuclear village” which is unusually closed, exclusive and ungenerous. I myself started my student life as a member of this “nuclear village” in early 1960s, but I was ruthlessly ejected from the village in 1970s when I was identified as a harmful criticizer of its policies.

Since I began to openly criticize the governmental nuclear policy in early 1970s, I experienced extraordinary harassment in my academic life at the University of Tokyo. I was excluded from the education system, and my research budget was completely cut. My lecture tours to various parts of Japan were often tailed by a power company staff member in charge of watching me. A medical trainee sent from Tokyo Electric Power Company sat next to me at the laboratory to record my ideas about the anti-nuclear movement. Nobody was permitted to talk to me from morning till evening. I experienced different types of
obstruction or interference in the process of applications for a professorship at other colleges or universities.

I could narrowly survive this very difficult time, firstly by my own personal belief in life with dignity, secondly in solidarity with understanding people in the fields of science and public movements, and thirdly, maybe most importantly, through the support of my partner. Very interestingly, the human relationship between my boss and myself was ironically slightly improved after a severe nuclear accident in U.S. which took place at Three Mile Island in March 1979. He seemed to have understood that my warnings about the risks of nuclear power generation were not entirely false. But my position was frozen to an assistant lecturer for 17 years until 1986, when I moved from the University of Tokyo to Ritsumeikan University, which was a great happiness for me.

I must relate this unconstitutional suppression of freedom, which I personally experienced, in the background of nuclear power exploitation in Japan. This, I feel, is a significant element that has endangered Japanese society.

Now I would like to make some comments about the situation in the radiation disaster area of Fukushima. I visited the area three times (mid-April, early May, and early August) after the accident of March 11th for the following purposes: to visit my friends with whom I have been co-working with for a nuclear-risk-free community for about 40 years, to make several lectures for educationalists, citizens, workers, young mothers and specialists, to offer advice on radiation protection to the people who need me, and to measure radiation levels and to sample soils contaminated with radioactive substances.

The radiation levels have been and still are very high in the nearby areas and within so-called hot-spots, even in Fukushima City populated by about 280,000 residents some 60 km distance from the nuclear power plant. I made a radiation survey between Iwaki City and Namie Town, about 80 km apart, the result of which is shown below. Radiation exposure rate was about 0.5 μSv/h in Iwaki, but it gradually rose up to 20, 30, or even to 50 μSv/h in the northwest area of nuclear power plant.
Radiation levels in Fukushima City are different from place to place, but, on an average, the current exposure rate is about 1 micro-Sievert per hour at the height of 1 meter above the ground, which is roughly equivalent to 150-200 chest X-ray examinations per year.

The major cause of external radiation exposure is radioactive cesium-137 deposited on the ground. The total amount of cesium-137 released from the Fukushima Nuclear Power Plants has been estimated to be about 168 times greater than that released by the Hiroshima A-bomb, according to the evaluation by the Ministry of Economics, Trade and Industry. The majority of these radioactive substances now deposited on the ground were released during the first week after the hydrogen gas explosions in the plant, while the radioactivity freshly coming down in recent days is quite small. It is noteworthy to recognize that radioactive cesium is very tightly caught by several centimeters of the surface soil layer, and I myself verified in cooperation with Ms. Yoshiko Tanigawa that cesium-137 is not easily dissolved in water, even if we wash the contaminated soil with large quantities of water. This property is peculiar to the clay-like soil in Fukushima. This soil quality is the main reason why the levels of radioactive contamination of rice cropped this autumn in Fukushima were considerably low. It also suggests that rainfall will not easily wash out radioactive cesium, and why sunflower may not effectively decontaminate the soil in the Fukushima case.

Therefore, in order to reduce radiation levels above the ground, it is quite effective to remove only several centimeters of the surface soil layer. During my second visit to Fukushima in May, I carried out an experiment in a kindergarten in Fukushima City to demonstrate the effectiveness of surface soil clearance. The radiation level was remarkably decreased by removing only 2–3 centimeters of the surface soil layer, and the administrators of the kindergarten made efforts to eliminate the contaminated surface soil.
thereafter, which enabled them to have an outdoor event for children in early October.

I am convinced that we should earnestly endeavor to carry out every possible measure to protect people, especially young children, from the harmful ionizing radiation that has resulted from the serious accident affecting the nuclear power plants upon which our generation has become dependent to an extent. Here in Kyoto, we are now unconsciously enjoying electric power generated by nuclear power plants only 60 kilometers from this conference venue. There are 14 nuclear power plants in Fukuı Prefecture just adjacent to Kyoto, and a vast amount of high-level radioactive waste has already been accumulated, which will have to be taken care of by the future generations. Generations to come after us will have to manage to isolate such dangerous nuclear waste from civil life for thousands of years. They must expend huge resources for the disposal of nuclear waste which will not produce any value for them. We, the people of today, are enjoying nuclear power, and are going to leave a tremendous “negative fortune” to our children, grandchildren, and future generations over tens of thousands of year. We must ask ourselves whether or not this is ethically justifiable.

Now, as is expected by Professor Akihiko Kimijima, the organizer of this APPRA Conference, I think I must conclude my speech by raising several points as an agenda for peace researchers after 3/11. Based on my personal experience as a nuclear scientist specializing in radiation protection over 45 years and also as a peace researcher who has been confronting these unprecedented difficulties, I would like to suggest following 5 points:

(1) Regarding the definition of peace, I fundamentally agree with Dr. Johan Galtung, and understand peace not only as an “absence of war” but also as an “absence of violence” which can be categorized into direct violence, structural violence and cultural violence. Although the enormous scale of the earthquake itself and the accompanying tsunami were of natural origin, we still observed a number of incidents of structural and cultural violence which aggravated the damage and pain of the sufferers in the devastated areas. It is the role of peace researchers to make investigations to explain how the effects of an original natural disaster are further aggravated by interconnections of structural and/or cultural violence.

(2) We must construct a comprehensive aid system for the people in disaster areas by integrating useful potentialities in the fields of politics, administration, economics, science, technology, and culture, including efforts for the decontamination of the living environment, adequate control of radioactive contamination of foods, dissemination of literacy about radiation and radioactivity for eradicating social discrimination and prejudice against sufferers, and the establishment of a health check system to identify and treat the stochastic effects of radiation such as cancers and leukemia in the earliest stages. In order to integrate individual effort into an effective total system, a peace-minded general coordination system must be established.

(3) An agenda for peace research suggested from my own personal experience in academic life is to develop a method to sense dangerous social signs in the earliest stage, including signs in the fields of
structural and/or cultural violence such as academic harassment, irrational policy execution without sincere attitude toward science, emasculation of democracy, etc. It may be of some help to develop some indicators such as the Global Peace Index which was developed by Institute for Economics and Peace (UK), or the Universal Human Rights Index by UN Office of the High Commissioner for Human Rights. Such indicators, if possible, may be able to function to an extent for warning people to this latent danger in society.

(4) Another agenda for the peace researcher is to elucidate the whole story of the Fukushima tragedy not only from the short term point of view but also from a long term point of view in world history. Efforts should be made to clarify the direct and indirect reasons why such a catastrophic nuclear disaster occurred in Japan by comprehensively analyzing and synthesizing historical facts in the light of, for example, the subordination of Japan’s politics to U.S. strategy in the postwar period, a quite Japanese way of old-fashioned politics symbolized by the combination of the taxation system for promoting nuclear power, and “Yarase” culture, i.e. faking people’s opinion favorable to nuclear power. Lessons from such research, when combined with the sincere efforts of educationalists and journalists, may become crucially important for the Japanese people to choose a more peaceful and safer future.

(5) Finally I will add an agenda for the peace of future generations. This is the agenda in connection with the point I already referred to concerning the long-lived radioactive waste disposal. How can we build a consensus about the acceptability of technologies which may leave immeasurable potential risk as a “negative legacy”, such as the very long-lived nuclear waste which will be tremendously cost but will never produce any value for future generations? Peace researchers are expected to answer the question: Is it ethically acceptable for us to enjoy nuclear energy for our life while leaving behind hard to estimate risks to future generations with no possibility of obtaining their consent?

Now I will close this keynote speech by expressing my heartfelt welcome to you and my appreciation for your listening to my speech. The situation at Fukushima is truly serious, but we will continue to encourage the sufferers through their difficulties. And I hope all of you will be with us.

Thank you.

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