

Chapter 16

From Fukushima to the World

How to Learn from the Experience in Japan

Tatsujiro Suzuki

Abstract This is the text for the after-dinner speech given by Prof. Tatsujiro Suzuki, then Vice Chair of Japan Atomic Energy Commission, on August 4, 2011 in Berkeley for the 2011 PAGES Summer School, “Reflections on the Fukushima Daiichi Nuclear Accident: Toward Social-Scientific Literacy and Engineering Resilience.”

Keywords Vice chair · Japan Atomic Energy Commission · Speech · 2011 PAGES Summer School at Berkeley

Thank you very much for your kind introduction. It is my great honor to speak as a dinner speaker at the 2011 Advanced Summer School of Nuclear Engineering and Management with Social-Scientific Literacy. The given title of my speech is; “From Fukushima to the World: How to learn from the Japan’s experiences.” This is a great title and I wish to make personal remarks tonight, so please note that this is not necessarily representing the views of Japan Atomic Energy Commission (JAEC) or the government of Japan. Before I start my speech, I would like to make a few remarks on my personal feelings on this issue.

First is “sympathy.” I would like to express my deepest sympathy and condolences for victims of the Earthquake and Tsunami, and their families. In particular, my personal sympathy goes to people who have been forced to evacuate from their own homes and land. Even after several months they are not sure when they will be able to go back to their own homes and some fear that they may not be able to ever return. It is heartbreaking to watch the site and hear people’s anger, frustration, and anxiety over the accident and their future.

T. Suzuki (✉)
Research Center for Nuclear Weapons Abolition (RECNA),
Nagasaki University, 1-14, Bunkyo-Machi, Nagasaki 852-8521, Japan
e-mail: tatsusuzuki@nagasaki-u.ac.jp

Second is “regret.” As a researcher working on nuclear energy policy for over 30 years and as a government official, I am truly regretful for what happened at Fukushima. How could this have happened? Why could we not prevent the accident? How can we prevent such nuclear disasters in the future? These are the questions that I have been asking myself every day since March 11. It is our responsibility to answer these questions with complete transparency and sincerity. This is the only way, I believe, to restore the trust lost by this accident.

Third is “thank you.” I would like to express my sincere thanks for all the assistance and heartwarming support given to us by the U.S. and many other countries after the Earthquake and the accident. I also thank you for this great opportunity to give a talk in front of distinguished experts and outstanding students who are pondering the future of nuclear energy. To be honest, I do not have any good answer regarding the future of nuclear power. I am sure that not only experts but general citizens are also concerned about the future of nuclear power. In this context, I am convinced that it is my (and Japan’s) responsibility to share information and experiences about the accident to the greatest extent possible so that you can make better decisions. That is why I have been accepting as many invitations as possible to speak on Fukushima since May 2011.

Today, though, it may take too much time to give you speech I prepared for other international conferences which consists of more than 60 slides. Instead, I will summarize four major points which are: the seriousness of the accident, securing safety of the public and the environment, energy and nuclear energy policy, and implications for international society.

First, how serious is this accident? It is clear to everyone that the Fukushima Dai-ichi accident is one of the worst in global nuclear history. It is unique in the sense that it was triggered by a massive earthquake and tsunami, which resulted in three core meltdowns and four explosions at one site. A large amount of radioactive release occurred which forced more than 80,000 people to evacuate, and it is not yet completely under control, more than four months after the accident. In terms of the quantitative impact of the accident, the International Nuclear Events Scale (INES) scale is now rated as Level 7, but I believe the social consequences of this accident cannot be expressed by this single number. The most serious social consequence of this accident is “loss of public trust in Japan’s governance over nuclear safety.” JAEC issued statements on this point as follows:

We are gravely concerned about this accident which can fundamentally undermine public trust in safety measures, not only in Japan but also in other countries [1].

[T]he people’s confidence in the adequacy of the risk management activities has been lost due to the occurrence of this accident [2].

While it is technically possible to take measures to enhance nuclear safety responding to this accident, it will be extremely difficult to restore public trust in the near future. This is the biggest challenge, I believe, for Japan’s nuclear energy policy.

Second, we must secure public safety and restore the environment. This is the top priority of the government, but so far the results of its efforts are not completely satisfactory. There are many challenges that we must face. Managing

a large amount of highly contaminated water is one big challenge on site. Continuous monitoring and drawing a more detailed “contamination map” is another. Huge efforts may be required to decontaminate the land/water and to assure that people can return without fear of radiation. And it will probably take decades to remove spent fuel from the reactors and to completely decommission all four reactors. *This is a huge, very expensive, very complex, and unprecedented challenge which we have never faced before.* We may need new technologies to cope with these difficult tasks. I believe we need a systematic, strategic, and well-planned approach to complete this process. We probably need a new institutional scheme as we must deal with technological, economical, legal, and social issues. International cooperation on this matter is essential. JAEC also issued a statement on this issue:

The government should develop an organizational framework to promptly and effectively carry out such emergency measures, ... and if necessary, it should develop the legal framework required for each measure, and immediately start on such steps as implementing demonstration tests on effective technology [2].

Third, we must formulate an overall energy and nuclear energy policy. The top priority on this issue is how to secure the safety of existing nuclear power plants and gain public trust. This is a short-term energy policy issue, but critically important for long-term energy future, too. Unless we regain public trust in the safety of existing nuclear power plants, it is not possible to discuss a positive future for nuclear power in Japan. Unfortunately, public trust in nuclear safety regulation has been completely lost. The government plans to separate the Nuclear and Industry Safety Agency (NISA) from its parent body, the Ministry of Economy, Trade and Industry (METI); and the Nuclear Safety Commission (NSC) will probably be incorporated into a new safety regulatory agency. Restructuring the nuclear regulatory agency alone may not be enough to regain public trust.

In this context, the Government’s report to the International Atomic Energy Agency (IAEA) issued in June states:

it is necessary for Japan to conduct national discussions on the proper course for nuclear power generation while disclosing the actual costs of nuclear power generation, including the costs involved in ensuring safety [3].

I agree. We need an innovative policy making process, stimulating public debate and incorporating public input while still being based on scientific evidence. Do we have such a forum? One possible social function that we need is an institution dedicated to Technology Assessment (TA) which can provide objective and unbiased assessment of societal implications of science and technology. Information disclosure with proper assessment is critically important for informed public debate.

For a longer term energy policy, the newly created “Energy and Environment Council” released its interim report on July 29, 2011, outlining a basic new energy policy. There are three basic philosophies: (1) Three principles toward a new best energy mix (reducing dependency on nuclear power, strategic approach for energy security, complete reevaluation of nuclear energy policy); (2) Three

principles toward a new energy system (realization of a distributed energy system, international contribution, multi-perspective approach); (3) Three principles toward national consensus (national debate in order to overcome “pro-” “anti-” conflict, strategy based on objective data, dialogue with various sectors of the public). The Council also suggests that it will re-evaluate costs of nuclear power considering the impact of the accident. Given public opinion polls (more than 60 % of the public are now in favor of “phasing out” nuclear power), “reducing dependency on nuclear power” is probably the likely outcome of the new energy policy. But it is not yet certain how soon, how much, and what other energy sources will fill the gap.

Fourth, we must address implications for international society. This accident is not just a Japanese accident, and has already had significant impacts on the global nuclear energy picture. There are more than 400 nuclear power plants worldwide and it is critically important to assure the safety of those plants. In this context, it is Japan’s responsibility to share our information and experiences as much as possible. One concern is that the world is now clearly divided into two groups, “pro-nuclear” and “anti-(including phasing out) nuclear.” This trend, which existed before but was much more subtle, is now clearly changing the global politics of nuclear power. It is getting more difficult to reach a consensus on nuclear energy policy, although there is a growing consensus on enhancing nuclear safety in general.

At the recent UN Conference on Nuclear Disarmament held in Matsumoto City, Japan, July 27–29, 2011, there was an interesting discussion on civilian nuclear power. Under the Non-proliferation Treaty (NPT), Article IV guarantees the “inalienable right” of the peaceful use of nuclear power by member countries. But Ms. Yoriko Kawaguchi, former co-chairperson of International Commission on Nuclear Non-proliferation and Disarmament (ICNND), suggested that there should be “responsibility” concerning use of nuclear power. However, there was a strong statement by Dr. Yukiya Amano, Director General of the International Atomic Energy Agency (IAEA), that “global use of nuclear power will continue to grow in the coming decades and it will remain an important option for many countries.” There was still another important issue emerging from the Fukushima accident. That is the common characteristic of “nuclear safety” and “nuclear security,” especially the safety and security issue associated with spent fuel storage which has become a major policy issue for the international community.

I would like to conclude my talks with the following remarks.

First, we should be able to overcome this tragic accident with our wisdom. Never give up. Yes, this is an unprecedented crisis, but crisis can be an opportunity. We will draw lessons and come up with innovative ideas to improve the safety of nuclear power plants and to clean up the site. If we cannot control nuclear energy, how can we control nuclear weapons? We should overcome this man-made disaster with a humble attitude towards nature and science/technologies. I truly believe that the international community can work together with Japan to overcome this crisis.

Second, let’s make Fukushima a symbol of “recovery.” Hiroshima and Nagasaki were victims of nuclear destruction, but became symbols of “peace.”

Fukushima is now victim of one of the most serious nuclear accidents in human history. But, I sincerely believe that Fukushima can become a symbol of “recovery.” This should be the goal of the Japanese government, and I personally will do my best to achieve this goal as a government official and as an individual.

Finally, in order to achieve the above two goals, I believe that the role of scientists, like yourselves, can be extremely significant. One of the important lessons we learned from the Fukushima accident is that closer collaboration between nuclear engineers/scientists and scientists in other fields, especially social scientists, is definitely needed to improve the “safety culture” of the nuclear community. I believe this summer school has already played a very important role in achieving this important goal. I appreciate and congratulate you on all of the efforts you have made, and I hope my talk today has contributed to a better understanding of the implications of the Fukushima nuclear accident.

Thank you very much for your attention.

Open Access This chapter is distributed under the terms of the Creative Commons Attribution Noncommercial License, which permits any noncommercial use, distribution, and reproduction in any medium, provided the original author(s) and source are credited.

References

1. Japan Atomic Energy Commission (5 Apr 2011) Statement on measures responding to the Tokyo Electric Power Fukushima Daiichi and Daini nuclear accident caused by the Great East Japan Earthquake. Available at: http://www.aec.go.jp/jicst/NC/about/kettei/seimei/110405_e.pdf. Accessed 21 July 2014
2. Japan Atomic Energy Commission (10 May 2011) Measures to be taken for the accident at the Fukushima Dai-ichi Nuclear Power Plant of Tokyo Electric Power Company (Statement) Available at http://www.aec.go.jp/jicst/NC/about/kettei/seimei/110510_e.pdf. Accessed 21 July 2014
3. Nuclear Emergency Response Headquarters, Government of Japan (Jun 2011) Report of Japanese Government to the IAEA ministerial conference on nuclear safety: The accident at TEPCO's Fukushima Nuclear Power Stations. Available at: http://www.kantei.go.jp/foreign/kan/topics/201106/iaea_houkokusho_e.html. Accessed 21 July 2014