4 December 2020

Declaration of the International Conference on Recovery after Nuclear Accidents: Radiological Protection Lessons from Fukushima and Beyond

Organised by the International Commission on Radiological Protection (ICRP) and hosted by the Japan Atomic Energy Agency (JAEA), this conference brought together online, scientists, experts, authorities, professionals, and citizens from around the world from December 1st to 4, 2020. More than 2000 people from more than 100 countries have registered, and more than 130 contributions were presented,

The long list of Japanese and many other organisations supporting and cooperating with this conference which you can see on the website, and the interest of so many people from around the world, demonstrates and manifests the importance of this subject.

This conference allowed many people to share their personal and professional experiences of recovery after nuclear accidents, to better understand the complex issues at stake, and to be better prepared in case of a future accident.

It also allowed intergovernmental bodies to present their views, including the International Atomic Energy Agency (IAEA), the Nuclear Energy Agency (NEA) of the Organisation for Economic Co-operation and Development (OECD), the United Nations Scientific Committee on Effects of Atomic Radiation (UNSCEAR), and the World Health Organisation (WHO).

I do not want to repeat what has already been said during the last four days. Everything has been recorded so you are able to re-watch the sessions, and the proceedings will be published in Annals of the ICRP. Instead, let me highlight a few themes from this conference.

One important objective of this conference was to improve the understanding of the state of recovery in Japan. Let me start by summarising some of what we have heard this week.

- The nearly ten years since the Fukushima accident began have been a difficult time, but headway has been made in many areas. The situation at the Nuclear Power Station was stabilised, and there has been significant progress on decommissioning. In the public domain, large areas have been decontaminated, most evacuation orders have been lifted, and essential services have been restored to support those who have returned to their homes. However, many unknowns and obstacles are still ahead of those who have decided to live and work in the affected areas not the least of which is discrimination, and the situation is not easier for those who have been evacuated and have decided for various reasons not to return home or are still hesitant to do so. In addition, some “difficult to return” areas remain.

- The protective actions implemented rapidly by the authorities kept exposure levels of those affected low enough that direct radiation-induced effects have not been observed so far and are unlikely to be observed in the future. However, there remain some uncertainties and many people remain concerned about the possible effects in the future, especially in children and pregnant women. Beyond the potential direct effects of radiation, lifestyle disruptions have had a

noticeable impact in terms of increasing certain common pathologies as well as on the psyche of those affected in Fukushima. Ranging from resignation and apathy to anxiety and even depression, the psychological impact of accidents has a lasting effect on the quality of life of many people. In this context marked by both uncertainty and the disruption of the physical and mental well-being of the population, it was suggested that inclusive health surveillance in the affected areas, including the Fukushima Health Management Survey, must remain a long-term priority for the public authorities.

- Recovery at the Fukushima plant site is under close supervision with a detailed medium and long-term roadmap. The dismantling work is progressing steadily supported by a huge Research & Development effort in the field of remote operating equipment due to the high level of residual radiation.

- A major challenge of decommissioning in the near future is the management of the water that has been accumulated over the years in order to avoid its discharge to the environment. After treatment to significantly reduce the radioactivity in the water, two technical solutions have been proposed: release into the atmosphere through evaporation, and dilution in the ocean. Japanese experts have studied these approaches and concluded that neither would lead to adverse impacts on human health or the environment. However, there are many points of view, and concerns about economic and social impacts remain. Given this, it was suggested that the public authorities support a transparent, pluralist and collaborative decision-making process to be initiated without delay.

- As mentioned on several occasions, a significant difficulty for the inhabitants of Fukushima today is the absence of a shared vision of the future beyond the common understanding of radiation risks. This makes it difficult to discuss the situation and find ways to overcome the remaining challenges. Most people know that the authorities are fully engaged in the recovery process and that they have a plan, but there is also a shared feeling that not being associated with its development and implementation, this plan cannot meet their expectations.

Looking forwards, this conference also aimed to consider strategies that may accelerate recovery, and to improve preparedness for recovery from possible future major nuclear accidents. Let me highlight a few themes that emerged this week most important for the future.

- A large nuclear accident can cause a breakdown in society affecting all aspects of individual and community life. Significant health consequences are possible depending on the nature of the accident, but even if not there are wide-spread and long-lasting societal, environmental, and economic consequences, all of which are challenging to deal with given the complexity of the situation. This highlights the need for preparedness involving stakeholders before an accident.

- The new ICRP *Publication 146* Radiological Protection of People and the Environment in the Event of a Large Nuclear Accident, developed over nearly a decade in cooperation with experts from around the world, reflects lessons based on the direct experiences of authorities, operators, and affected people. Although there are undoubtedly more lessons yet to be learned, its purpose is to present recommendations and guidance on response to and preparedness for nuclear accidents with significant releases to the environment.

- Experience from both the Fukushima and Chernobyl accidents shows that additional radioactivity will persist in the environment long after a major nuclear accident, decreasing progressively through deliberate actions and natural processes. This implies that public authorities must maintain some actions for years and even decades after the accident to continue to protect residents and communities. They also must implement new measures to support the latter, and the improvement of living conditions of people in the affected areas.

- The conference highlighted that the essential actions of public authorities should not overshadow the central place of affected people in the recovery process. They are all concerned in one way or another by the situation and they all aspire to regain serenity, both evacuees and those who have decided to stay or return. The expectation is to return to their usual business and managing their daily concerns, even if taking into account the presence of radioactivity remains a part of their usual routine.

- The experiences of several communities in Fukushima, like others previously in Chernobyl, have shown that it is possible to involve affected people in the recovery process so that they can regain control of their personal situation. Cooperation between experts, authorities, local professionals, and the affected people (what the ICRP calls co-expertise process) is a proven approach to develop practical radiological protection culture giving people decision-making autonomy to protect themselves and their loved ones. Experience has also shown that radiological protection is not an end in itself and must be used to improve living conditions in affected areas, whether it concerns individual well-being or the quality of living together. This improvement can only be achieved through the combined commitment of public authorities, communities, and the affected people themselves to support individual and collective projects that emerge as a result of the recovery process. This support must take place within a framework of governance of social and economic activities based on inclusiveness, transparency, accountability, vigilance, and equity. This is a matter of human dignity and ethical duty.

- More than three decades after the Chernobyl accident and almost a decade after the Fukushima accident, it is clear that the recovery process is a long journey, which necessarily involves several generations. In this context, the memory of the accident is not only commemorative, but also serves as a living reminder to raise awareness in the next generation, to maintain everyone's vigilance, and to contribute to building the future. The involvement of the education system in schools and universities is a crucial way to pass the experience on to the next generation and maintain the spirit of recovery. This transmission of experience is also the fuel of recovery preparedness in the event of nuclear accidents in the future, the possibility of which cannot be excluded despite all efforts to avoid them.

- Past experience in the areas affected by the Chernobyl accident, and more recently in the areas affected by the Fukushima accident, has shown that it is through dialogue with all stakeholders that it is possible to reconcile the diverging points of view that, given the complexity of the recovery situation, inevitably exist concerning the future of the living together in the affected areas. It is also through dialogue that all concerned can: build a shared vision for the future; identify the values and principles that will drive protective actions and other social, environmental, cultural, and economic revitalisation projects; and work together to achieve this vision.