Opening address

Akira HASEGAWA
OECD/NEA Data Bank Head

Thank you Mr. Chairman, Good Morning Ladies and Gentlemen,

On behalf of the NEA Director-General, and in the name of the OECD Nuclear Energy Agency, it is a great pleasure for me to welcome all of you to the International Conference on Nuclear Data for Science and Technology. The NEA is pleased to be cooperating with the French Commissariat à l'Énergie Atomique in organizing this latest and most prestigious international conference on Nuclear Data, following previous conferences successfully held in Santa Fe, Tsukuba and Trieste in the last ten years. This conference has a long and glorious history of more than 40 years, starting with the first Washington conference in 1966. Since the very beginning until the present day, NEA has been very closely involved.

My first words are ones of gratitude to CEA, not only for their kind offer and the efficient organization of this conference but also for their reiterated support of the OECD Nuclear Energy Agency activities in general.

The success of an international conference depends very much on the dedication and work of its international advisory and programme committees. I therefore would like to thank both Committees for their work in the preparation and selection of the papers for this conference.

To end this part of acknowledgements, I thank all of you who have travelled from many countries, nearly 45 in all, in order to exchange the latest information with your invited and contributed papers and new topics for discussions. These constitute the essential ingredient, not only for the conference but for the progress in this field. Again, thank you very much, ladies and gentlemen, for your interest in this conference and also in the activities of the NEA.

As researchers, I dare say that you enjoy the privileged situation of being able to gauge the direct impact of your work on the lives of your fellow citizens and you also bear the associated responsibility of working under the constant call from society to ensure sustainability in its broadest sense. The field of nuclear data is very broad and it involves interdisciplinary studies extending over many areas of physics, engineering and chemistry. It deals, on the one hand, with fundamental aspects of nuclear interactions and, on the other, with applications in various fields. This conference is application-oriented but due consideration is given to the fundamental aspects relevant to the basic understanding of the data.

At the NEA, the international community joins efforts in the Working Party on International nuclear data Evaluation Co-operation, WPEC as we call it, promoting the exchange of information on nuclear data evaluations, associated measurements, nuclear model calculations and related topics, and it provides a framework for co-operative activities between the participating nuclear data evaluation projects, not only in NEA, which only accounts for 28 countries, but also in the rest of the world through the joint cooperation of IAEA.

For the evaluation and measurements of nuclear data, international cooperation is inevitable. The number of nuclides to be considered exceeds 1000, required only for the nuclear energy applications today. If we consider very short life nuclides, which are attracting more and more attention for the edge-cutting researchers and astro-physical researchers, it diverges into an extremely large number; and each nuclide induces so many reactions. Each reaction spans so wide a range of energies, in log scales more than 14, i.e., from sub milli eV to the GeV range. And nuclear data are measured in so many areas of the world. Considering the limitations of human resources, coordination and cooperation is inevitable in the field of nuclear data; this is why such dense cooperation has evolved.

Thus nuclear data centers in the world, such as the NEA Data Bank, have been set-up and have been operating until today. With the close cooperation between data users in the application fields in research as well as in industry, measurements, evaluations and formatting to the evaluated libraries are made and, as the final product, ENDF/B-VII, JEFF-3.1, JENDL-3.3, BROND, CENDL, FENDL, these libraries have been produced and supplied to the public reflecting the needs in each regions.

Extending our focus to the future, we can see the big projects are waiting for us. For examples, GEN-IV; the fourth generation of nuclear power plants, or GNEP: the Global Nuclear Energy Partnership, ITER in fusion, for those, there are no confirmed mock-ups yet in the world; thus nuclear tools, i.e., nuclear data and computer codes, are the essential ones, so yearly efforts has been made up to today to sharpen the edge as possible as we can. Nowadays, it is essential to cope with both aspects of safety and economy for nuclear energy applications. At present we are always questioned by ordinary users about the accuracy of nuclear

data and their reliability quantitatively. We cannot say we have achieved our goal yet but we are approaching it steadily, as you will see in this conference.

Before you engage in your specific discussions, I would like to mention some general considerations about the current world energy scene and the role that nuclear is playing and is expected to play in the not-so-distant future. I am doing so not just to provide you with some recent figures on general indicators but in the hope to underline to what extent your efficient and dedicated work in the field of nuclear data can actually contribute to shape the years to come.

Energy policies are driven by economic, social and environmental factors. In OECD, Sustainable Development is a key issue for the organization. According to the Bruntland Report, the concept of sustainable development is the process of balancing the need of humans for economic and social development with the need to protect the natural and built environment so that these needs can be met not only in the present, but also in the indefinite future. Therefore, economic, social and environmental, these three items are mutually interconnected as in a complex system.

I would like to take a moment to reflect with you on each item. For the first item, Economics, competitiveness of various electricity generation options varies from country to country. For nuclear, capital investments represent 60% of the total cost against 40% for coal and 17% for gas. However, another cost component, that of fuel, puts nuclear in a more comfortable position at 15 In the first place, about where to invest research and development activities in the nuclear field: indeed, lower capital investments brought about by new technologies, new optimized procedures, control systems and innovative materials will always be welcome. But the message also comes with a cautionary tone: any proposed development needs to be carefully examined from a cost perspective if it is to be successfully implemented.

With the current LWR deployment and assuming a once-through cycle, identified uranium resources will last for more than 85 years (or 270 years if we add the inferred and other more prognosticated resources). Fast neutron reactors and closed cycles can drastically change the picture and multiply by a factor of 30 the duration of the identified resources. You can find further information on this topic of quantifying uranium resources in the recently appeared 2006 NEA/IAEA Red Book on uranium resources.

Our current world situation presents many challenges, and society and governments are actively seeking responses to them. When we speak about nuclear energy, you immediately guessed, society is rightly addressing us, experts, questions on radioactive waste disposal and proliferation issues.

Nuclear data needs for advanced reactors systems and advanced nuclear fuel cycles will be one of the main subjects of discussion during this meeting and has been a recent topic also within NEA working groups, which is a good thermometer, I like to think, indicating the attention paid to the subject in our societies. Concern about nuclear proliferation issues is also a consideration of this conference in line with the topics on safeguards and security issues.

In order to complete this morning's tour of the sustainable development issues, I would need to reflect for a moment on the purely environmental component of the technologies emerging from the advanced reactor concepts under study on forums like GEN-IV. Greenhouse emissions are an environmental issue. Many positive things can and have been said about nuclear in this context. But environmental concerns have other facets and, as in the case of economics, the message is to continue to develop technologies with high inherent levels of safety. I also feel this message is well understood by industry and consequently the nuclear data community as well that has incorporated it as one of its driving principles.

After these few snapshots trying to show how your current efforts in the nuclear data field can and need be integrated in a sustainable development perspective, I would like to express, as a representative of the OECD Nuclear Energy Agency, my satisfaction with your large presence here today as experts from all over the world. Thank you very much for traveling to Nice for this conference. The success of this series of conferences, clearly appreciated by the increasing number of participants at each edition, I interpret as a good example of our sound record in terms of working methods and structure for international collaboration. In 2004, the NEA Data Bank celebrated the 40th anniversary of its activities in the field of distribution of large collections of experimental and evaluated nuclear data as well as computer codes; in 2008, next year, the NEA will celebrate the 50th anniversary of a rich international collaboration.

On behalf of the NEA Director General, Mr. Echávarri, I wish you a very successful and fruitful conference.

Thank you for your attention.