2.18 What JNDC should be in the Future?

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It is well recognized that Japanese Nuclear Data Committee, or Sigma Committee, contributed greatly to establish the solid basis of the Japanese nuclear science and technology. In 2002, JNDC completed JENDL-3.3 in close cooperation with the Nuclear Data Center of JEARI and is now ready to go on the JENDL-4 project. The ground on which the JNDC stands, however, have gradually been changed and the now the two research-and-development organizations, JAERI and JNC, are going to be united into one organization. In these backgrounds what JNDC should be in the future beyond these several years of big change must be defined. In order to discuss this issue a new Ad Hoc Committee was established and was asked to report on the future vision of JNDC. As an interim report, several plans and the main points of discussion in the Ad Hoc Committee is presented.

1. Introduction

The Japanese Nuclear Data Committee (JNDC) was established in 1963 and it has been playing a key role in developing the evaluated nuclear data libraries ranging from JENDL-1 to JENDL-3.3. Not only these libraries but various Special Purpose Files such as FP Decay Data File, Activation Cross Section File, High Energy File and so on, and a lot of related publications in addition, are the fruits of the close and excellent collaboration between JNDC and the Nuclear Data Center (NDC) of the Japan Atomic Energy Research Institute (JAERI). These libraries and files constitute a versatile and user-friendly data basis for nuclear science and technology. The committee also conducted long-term consecutive works such as compilation and evaluation of the nuclear structure and decay data for Nuclear Data Sheets. In this way the activities of JNDC made a huge contribution to the peaceful use of the nuclear energy in this country. Now at the beginning of the 21st century, advanced utilization of light water reactors and accomplishment of the nuclear fuel-cycle are being elaborated and there exist a further challenge for the innovative fission reactors deployable after 2030 when the reactors currently in operation start to fulfill their lifetimes. Technologies expected to realize these goals require more reliable and versatile nuclear data and this is why the activity of JNDC must still be continued toward the future.

2. Current Situation of JNDC

The committee, JNDC, which is known domestically as the *Sigma Committee*, has been working almost on the voluntary basis with partial but persistent financial support from JAERI. JNDC has rather a complex organization. On the one hand, it is one of the Special Committees of Atomic Energy Society of Japan (JNDC/AESJ), and one of the Research Committees of JAERI (JNDC/JAERI) on the other hand. In the course of years of its activity this duality worked favorably making the collaboration among the private, the academic and the governmental sectors very effective and smooth. With the help of this kind of the structural merits as well as the zeal of the participants JNDC has long been active and productive. It is, however, recognized that JNDC is now turning a corner after the four decades of its successful history. The most influential factor is the unification of JAERI and JNC (Japan Nuclear Cycle development Institute) anticipated in two years. It is still an

open question what part the JNDC/JAERI will take in the regime of the new organization. It is easy to see that this issue affects the fundamental ground of the JNDC activity. The recent change in the way of governmental funding to scientific activities is the second important concern we must think about. The funding is becoming more project-oriented and competition-based. This trend makes it difficult for the basic and long-term activity like production and the evaluation of nuclear data to be persistently funded. The third concern is the aging of the members of the Sigma committee.

On the other hand, Ad Hoc Committee on Next Generation JENDL chaired by K. Shibata reported on July 2003 that the next generation General Purpose Library, JENDL-4, must be produced and that JENDL-4 should possess higher quality than ever for the wider range of users from nuclear technology to medial and physical science. In the report[1] to the Head of NDC they give specifications of JENDL-4 in a detailed way. To achieve this goal, they describe, JNDC should optimize its organization flexible enough to cope with the difficulties brought about by the recent circumstances surrounding the nuclear science field.

3. Discussion on the Future of JNDC

As described in the preceding section, the ground on which the Japanese nuclear data community stands has gradually been changed and now the two research-and-development organizations, JAERI and JNC, are going to be united into one organization. JNDC, if it has to be active and productive still in the future, has to cope flexibly with this new situation. In this context, a new Ad Hoc Committee was established this year to discuss the future vision of JNDC. It was required to report the conclusion to the Head of NDC/JAERI by the end of fiscal year 2003. The members of the Ad Hoc Committee on the Future of JNDC are as follows: M. Igashira (TIT), K. Ikeda (MHI), T. Iwasaki (Tohoku), O. Iwamoto (NDC/JAERI), K. Oyamatsu (Aichi-Shukutoku), K. Shibata (NDC), H. Harada (JNC), N. Yamano (Sumitomo), T. Yoshida (chair, Musashi Tech) and Y. Watanabe (Kyushu).

The Committee met twice (July 16 and Oct. 17, 2003) in Tokyo. Through the discussion, the essentiality of JENDL-4 for the nuclear science and technology in the future was a consensus among almost all the participants in accordance with the final report[1] of the Ad Hoc Committee on Next Generation JENDL. Some people argued in favor of the continuation of the current dual JNDC/AESJ-and-JNDC/JAERI structure and others pointed out the difficulties in sustaining it in the coming years of restructuring of JEARI and JNC. It was also argued that, in order to keep the high-standard activity, JNDC/AESJ could possibly play an essential role in the transitional years of the restructuring. In this case the working groups belong to JNDC/AESJ, one of the Special Committees of the Atomic Energy Society, and they work with the funding from NDC and/or other bodies like MEXT or industry. Works must be organized in a project-oriented way to be funded and the problem is that this is not always suitable for the basic work like nuclear data evaluation.

4. Concluding Remarks

In this country there is a very long and fertile history of nuclear physics research. Nuclear technology for peaceful uses has made a big progress since its infancy in 1950's and now one-thirds of the electricity is produced by nuclear plants in this country. Nuclear data (and only this) fully connects these two different but mutually conjugate scientific fields. This point must be stressed and then we can understand that the discipline of nuclear data is essential as one of the fundamentals of subatomic science and that the activity of JNDC should not be terminated. The Ad Hoc Committee is now finalizing the report on the electric mail basis.

[1] K. Shibata et al.: private communication (2003)

3. Papers Presented at Poster Sessions

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