International Atomic Energy Agency

INDC-038/LN

INDC INTERNATIONAL NUCLEAR DATA COMMITTEE

Report of the Chairman of the International Nuclear Data Committee for the period 1980 - 1982

A. Michaudon
Centre d'Etudes de Limeil
Villeneuve-St-Georges, France

December 1983

IAEA NUCLEAR DATA SECTION, WAGRAMERSTRASSE 5, A-1400 VIENNA

Reproduced by the IAEA in Austria
December 1983

84-00077

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References

1 - INDC-35/U — "Minutes of the 11th Meeting", Vienna, 16-20 June 1980
Compiled by S. Yiftah

2 - INDC-37/U — "Minutes of the 12th Meeting", Vienna, 5-9 October 1981
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3 - INDC(NDS)-111/LNA — Report of the Nuclear Data Section to the International Nuclear Data Committee (September 1978 - February 1980)
A. Lorenz

4 - INDC(NDS)-124/LNA — Report of the Nuclear Data Section to the International Nuclear Data Committee (March 1980 - August 1981)
A. Lorenz

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L83-24714
Translated from French

REPORT OF THE CHAIRMAN OF THE INDC FOR THE PERIOD 1980-1982

A. Michaudon

In this short paper I would like to give a brief outline of the work carried out by the INDC (International Nuclear Data Committee) of the IAEA from 1980 to 1982 inclusive, a three-year period during which I had the honour to serve as the Chairman of the Committee. For more detailed information I would refer you to the many reports published on the subject, and in particular those cited as references at the end of this paper.

As suggested by its title, the Committee's sphere of competence is that of the peaceful uses of nuclear data, its functions encompassing both the compilation of requests made by a wide variety of users and the actual process of obtaining the data (through measurements, calculations or evaluations) and then circulating and exchanging them, while ensuring the highest possible degree of co-operation and co-ordination between the various parties concerned. To this end the Committee carefully examines the work and future programmes of the Agency's Nuclear Data Section (NDS), while at the same time giving its attention to the broader issue of how the Section's work fits into the worldwide context of nuclear data research.

The Committee works largely through the meetings which it holds approximately once every eighteen months alternately with those of the NEANDC*/. During the three-year period in question the Committee held two meetings in Vienna - from 16 to 20 June 1980 (eleventh meeting) and from 5 to 9 October 1981 (twelfth meeting). The holding of meetings at these intervals proves in practice suitable for the type of work carried out by the INDC and NDS, especially since the members of the Committee are also engaged in the various missions entrusted to them between meetings.

The Committee's working methods are constantly improving. The bulk of the items on its agenda form the subject of working documents distributed by the NDS before the meetings, so that the topics proposed

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*/ Nuclear Energy Agency Nuclear Data Committee (OECD).

can be studied thoroughly beforehand. The traditional technical subjects are examined in specialized sub-committees first before being tackled in plenary session. Sub-committees "A" and "B", for instance, deal with matters relating to the uses of nuclear data in power production ("A") and other areas ("B"). Similarly, two further technical sub-committees have the function of up-dating nuclear data of a special importance - first in the case of standards, and second, in the case of cross-sections which, notwithstanding their importance, continue to contain uncertainties and discrepancies incompatible with the accuracy required. These two sub-committees collaborate closely with the two counterpart sub-committees of NEANDC in the compilation of joint files which are updated and published by the NEANDC and INDC in turn.

Other important matters are also brought before the two specialized sub-committees, the chief example being the provision of international assistance to the developing countries through the extensive expertise acquired in the field of nuclear data. The sub-committees also deal with a wide variety of meetings ranging from small gatherings of experts to world conferences which have to be co-ordinated with great care in order to avoid the duplication of work and to achieve maximum efficiency. Lastly, a number of well-defined subjects requiring continuous and attentive examination are studied as part of the Co-ordinated Research Programmes.

These working methods are now a matter of routine and a good balance has been attained in the sharing of the work between the sub-committees and the Committee as a whole in its plenary meetings. Through its ad hoc sub-committees and the Co-ordinated Research Programmes, the Committee is able to adapt with great flexibility to the new problems facing it. The frequency of the meetings is satisfactory and, at the two meetings held during the period in question, various confidential matters including, in particular, the Committee's future role, were dealt with directly and candidly by a session confined to Members. Steps have also been taken to ensure efficient co-ordination with other bodies, such as the above-mentioned NEANDC and the IFRC*/, which is concerned with atomic and molecular data relating to fusion.

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*/ IFRC:- International Fusion Research Council.

During the three-year period under consideration the Committee has employed the working methods outlined above. The minutes of its meetings (Refs 1 and 2) give an account of its activities and a further major source of information is provided by the NDS reports submitted to the Committee before each meeting (Refs 3 and 4).

During this period the Committee endeavoured to ensure that the relevant IAEA guidelines, as laid down by the Deputy Director General of the Agency in his statement at the opening of the eleventh meeting (June 1980), were followed in practice. Having considered the trends emerging in the technical and environmental problems associated with extensive development of nuclear power and the question of how its own missions should be oriented, the Agency has identified three priority areas: nuclear safety and the damage caused by radiation, international safeguards connected with the fuel cycle, and assistance to the developing countries.

Out of these guidelines, the NDS has achieved greatest success with regard to the provision of assistance to the developing countries. It is now clear that the experience acquired by the industrialized countries in the field of nuclear data is vast and could help to overcome many specific problems varying from country to country. Emphasis has been placed on training scientists from these countries and, hence, on the importance of granting them fellowships to enable them to work in the major laboratories, first on specific and well-defined problems and, second, on creating the co-operation, so vital within the Agency, between the units concerned with providing assistance to the developing countries.

This emphasis was further confirmed by the establishment of an "Interregional Project on Training in Nuclear Data Techniques and Instrumentation" and by an effort to develop further training courses within that connection. The Trieste training programme was continued, for instance, and a new session of it held in 1982 with great success. Similarly, a Co-ordinated Research Programme was established on nuclear data measurements and analyses relating to the interaction of 14 MeV neutrons with nuclei.

Because of the priority accorded to these areas of study the NDS has been obliged to trim down various other programmes, the Agency's activities being restricted at present to zero growth. In accordance with the guidelines of the Scientific Advisory Committee (SAC), for

example, the NDS has curtailed its research on nuclear data as applied to nuclear ^{232}Th-^{233}U breeder systems.

The Committee gave detailed consideration to the very comprehensive range of meetings organized by the NDS. With regard to the major regional conferences on neutron physics and nuclear data, the three-year cycle (one conference held annually in Western Europe, the USSR or the USA) would now appear to be too fast and needs to be slowed down. The next event of this kind with which the NDS will be associated should take place in 1986 at the latest.

Two successful Co-ordinated Research Programmes on actinides were organized during this period and should be completed by the end of 1982. The Committee earnestly hopes that they will be continued, even in a different form, perhaps by supplementing them with a programme of benchmark tests.

The Committee has given particular attention to the very important problem of documentation; it is planned to introduce a special publication tailored to the work in question with a view to deriving greater benefit from research conducted in the member countries. Accordingly, the Committee recommended the publication of two kinds of report: first, routine reports not subject to any particular supervision and, second, high-level technical and scientific reports whose publication would be subject to approval by a group of rapporteurs. It was decided to publish, as an initial step, reports of this kind summing up the conclusions reached by the two sub-committees in the work on standards and discrepancies which they carried out alternately with the NEANDC. The first report on standards is currently in press.

As far as evaluated data are concerned, the situation has become somewhat strained over the three years. The United States of America decided to make a considerable reduction in the circulation of their most recent set of evaluated data (known as ENDF/B-V) and to restrict it to countries with which they had concluded bilateral agreements. This attitude provoked a reaction from the European countries and Japan, which are in the process of compiling their own set of data (JEF), which will be circulated exclusively to member countries of the OECD Nuclear Data Bank. We are thus faced with a hardening of attitudes and a decrease in information exchange. However, in order to facilitate the exchange of data still available and restore the former favourable situation, the Committee urgently recommended the adoption of a common

format - the ENDF/B-V - for the presentation of nuclear data.

The Committee is continuing to follow developments as regards the units employed in nuclear physics and is endeavouring to ensure the continued use of the barn as a unit of cross-section for nuclear reactions. It is pursuing this matter jointly with the member countries of the International Bureau of Weights and Measures.

The Committee has often stressed the need for a basic physics programme. Without such a programme the scientific fundamentals supporting applied physics would soon be completely undermined and it would fast become a worthless or, indeed, pointless subject. It therefore recommends that meetings be held on more basic subjects such as the one on level densities scheduled for 1983.

Although it does not fall directly within its competence, the Committee regrets the fact that the Agency has not organized more conferences on fission, which it feels to be the key phenomenon in nuclear energy.

The budget and staff assigned to the NDS reflect the general policy of the member countries, as expressed at the level of the Agency, and the role played by nuclear data in their various applications. As regards nuclear power, the barely sustained or even slightly waning interest in nuclear data shown by the OECD countries is mirrored neither in the countries of the East, which still have a lively interest in the subject, nor in the Third World countries which are keen to secure the transfer of the corresponding technology. It is therefore very important that in the allocation of resources to the NDS the overall situation should be borne in mind and any loss of potential avoided. A special tribute is due in this connection to the NDS, which showed remarkable dynamism in its work, yielding, inter alia, a wide range of highly rated publications.

In conclusion, it would be useful in due course to examine the consequences of the way in which the functions and priorities of the NDS have developed, consequences which have already begun to emerge. If the observed trend continues and if, in particular, increasing importance is attached to providing assistance to the Third World, the Committee should perhaps be modified in its form and composition so that it can respond more effectively to this new orientation.