INIS
the world's nuclear knowledge reservoir

by Taghrid Atieh & Robert Workman

A global network called INIS has developed a nuclear information system for future generations.

The world's leading information system for peaceful uses of nuclear sciences and technology is changing. Set up 35 years ago, the International Nuclear Information System (INIS) is becoming the foundation for the preservation and exchange of knowledge in the fields of nuclear science and technology.

The INIS database covers a broad range of subjects within the nuclear field:

- Nuclear energy, including nuclear engineering; nuclear instrumentation and the nuclear fuel cycle;
- Nuclear safety;
- Radioactive waste management;
- Fusion research and technology;
- Life sciences and environmental aspects;
- Safeguards, non-proliferation;
- Isotopes and nuclear applications in earth sciences; agriculture; biology; medicine and industry;
- Radiation protection;
- Nuclear physics;
- Nuclear chemistry; and
- Economic, legal, and social aspects

Cooperation and Decentralization

INIS' strength comes from the fact that it is based on international cooperation among countries and global organizations. The number of INIS members has grown from 25 in 1969, to 113 countries and 19 international organizations in 2005.

Decentralization is also an important element of success. Most INIS operations are decentralized — the collection of input and the dissemination of products to end-users is decentralized in the Member States. The role of the INIS Secretariat is to process received raw information, and help users to easily access it.

Representation in the system is at governmental level; each country designates a national INIS centre to be responsible for all INIS-related activities within its boundaries.

Sharing the Wealth

INIS ensures visibility of national literature worldwide. It is an effective mechanism for information exchange among members — INIS national centres collect nuclear related information published within their boundaries and then send it to the INIS Secretariat at the IAEA in Vienna. This information is then processed and made available to all Member States as a comprehensive nuclear information reference service for publications and other types of literature in the nuclear field and the corresponding full texts of non-conventional (grey) literature.

INIS products are available in various formats to meet different needs in both developing and developed countries.

The two main INIS products are the popular bibliographic database — containing over 2.5 million indexed references — and the unique full text non-conventional literature (NCL) containing over 600,000 documents. INIS NCL is literature that is not available through normal commercial channels and includes scientific and technical reports, patents, conference proceedings, and theses.

From the outset, INIS understood the importance of collecting and preserving NCL documents as they represent Member States' achievements in the nuclear fields. Equally important is the fact that these full texts are not available through commercial channels and therefore their availability for future generations could be at risk.

Preserving Nuclear Know-How

During the last decades, the status of nuclear power in the world has changed dramatically. In some developing countries there is a quite noticeable active development of nuclear power, on the other hand in

some Western countries there is a tendency to gradually phase out nuclear power; in others this option is even proscribed.

The achievements in the fields of nuclear science and technology have resulted from expert knowledge that has accumulated over decades; the need to preserve this nuclear knowledge to ensure its availability for future generations is becoming critical.

The IAEA has the vital task of maintaining its nuclear knowledge and that of its Member States and of transferring that knowledge to future generations.

In recognition of these and other trends, and in response to this challenge, the IAEA has taken steps to address the management, preservation and promotion of knowledge and the maintenance of competence in nuclear science and technology.

The IAEA has stressed the unique role of INIS in nuclear knowledge preservation and management activities. The INIS Section became the IAEA's focal point in this area, and was renamed as INIS and Nuclear Knowledge Management Section.

Knowledge preservation and management involves building databases; collecting and maintaining scientific and technical information; establishing and enhancing information services; creating tools for producing input; sharing best practices; conducting training programmes; fostering cooperation; creating virtual networks.

INIS has been doing all this and will continue to play a significant worldwide role in this area.

Two important areas in nuclear knowledge preservation need to be addressed urgently:

❶ How to accumulate maximum reliable nuclear knowledge for future generations;

❷ How to support education in the nuclear field for current university students.

INIS has taken practical steps to respond to these two challenges:

❶ Identify historical information, in particular, fundamental investigations and developments made in the area of nuclear science and technology, mainly Nuclear Sciences Abstracts (NSA). By adding this historical information, INIS would be providing a truly comprehensive archive with precious information that will make a valuable contribution to real knowledge preservation in the nuclear field, and will ensure the availability of such important information to university students and to future generations.

❷ Recognizing the importance of knowledge transfer and of attracting young generations to nuclear fields and of providing them with easy access to reliable sources of knowledge that demonstrate the importance and the advantages of this area of sciences, the INIS Secretariat has made the INIS database on the Internet available on complimentary basis to students at universities and academic institutes in Member States. The response to this initiative has been very positive and so far over 260 universities in 56 Member States access INIS.

The IAEA's Director General reiterated the importance of this approach when he expressed the possibility of potential cooperation with the World Nuclear University in different ways. The ways include enabling free access to all World Nuclear University participants to INIS.

Faster, Bigger, Better

In the last decade, huge technological as well as communication and infrastructure advances have affected significantly users' needs and expectations:

- Immediate and quick access to the full text;
- Advanced and complex search tools are being made available, such as multilingual and semantic search capabilities;
- Wide range of information sources to be provided from one single access point.

In short, the challenge for INIS is to meet the rapidly changing users' expectations by providing a full range of high quality nuclear information services through a solid reliable system.

INIS Turns 35

In 2005, INIS is celebrating its 35th anniversary of continuous successful international cooperation. A system focused on fulfilling user's needs, on bringing benefits to all, and that facilitates the transfer of nuclear knowledge, supported by the IAEA, is a system that still has a lot to offer to support the future peaceful uses of nuclear sciences and technology.

As nuclear power and nuclear-related activities are permanently shifting in various countries, the worldwide exchange of information in these fields, as part of nuclear knowledge preservation, becomes even more important today than in the past. INIS is the reliable reservoir of nuclear knowledge for future generations.

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