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Nuclear Information and Knowledge

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INIS and Nuclear Knowledge Management Section

IAEA Department of Nuclear Energy

Editor:

Elisabeth Dyck

Nuclear Knowledge Management Missions: A Direct Service for Member States

Expert Team at OPG Darlington

Expert missions – coined 'assist visits' - on Knowledge Management for Nuclear Industry Operating Organizations were established in 2005 as one of many IAEA activities to help nuclear organizations in managing their complex body of knowledge. In 2007, the IAEA organized knowledge management assist visits to the Ignalina nuclear power plant in Lithuania, and two nuclear generating stations in Canada, OPG Darlington and Bruce Power L.P. ***Page 2***

Strengthening Relationships with Member States

Workshop in Bejing

In spring and summer 2007, relationships between the INIS and Nuclear Knowledge Management Section and several national INIS Centres were strengthened when Section Head Robert Workman visited Canada, China and India to meet with INIS Liaison Officers and speak at seminars and workshops organized by the centres. ***Page 3***

Supporting INIS Centres in Member States

Visit to the National INIS Centre of Egypt

The IAEA is assisting National INIS Centres in Member States. Recently, INIS expert visits supported the upgrading of the National Information and Documentation Centre of the Egyptian Atomic Energy Authority, the National INIS Centre of Uzbekistan, and assisted the National INIS Centre of Qatar in reactivating its role in INIS. ***Page 13***

Applying Guidance in Member States

Obninsk NKM Workshop

Regional Workshops provide an excellent means for cooperation *within* Member States: in May, Karlsruhe, Germany, was the location of the *European Regional Workshop on Managing Nuclear Knowledge*, while in June, a *Regional Workshop on Establishing Policies and Strategies to Preserve and Further Enhance Nuclear Knowledge* was held in Obninsk in the Russian Federation. In October 2007, an Asian *Regional Workshop on Managing Nuclear Knowledge* will be hosted by the Tokyo Institute of Technology in Japan. ***Page 11***

"Assist Visits" on Knowledge Management: A Direct Service for Member States

In 2005, the IAEA introduced the concept of expert missions – coined "assist visits" - on Knowledge Management for Nuclear Industry Operating Organizations. These missions were established as one of many IAEA activities on nuclear knowledge management (NKM); they intend to help organizations to identify, by self-assessment, their own maturity levels in NKM against a set of pre-defined criteria[1]. They also assist organizations in formulating detailed requirements and action plans for NKM and facilitate the transfer of practical NKM methodologies and tools. Also, mission teams of IAEA and international experts provide specific consultancy services to address emerging problems and long-term issues related to NKM and associated issues.

In 2007, the Ignalina nuclear power plant in Lithuania, the Darlington Nuclear Generating Station and Bruce Power L.P. in Canada benefited from this IAEA service to Member States. Previous assist visits were undertaken to nuclear power plants in Kozloduy, Bulgaria (2005), Krško, Slovenia (2 missions in 2005), and Paks, Hungary (2006).

[1]See *Knowledge Management for Nuclear Industry Operating Organizations*, IAEA-TECDOC-1510

continue on page 3

To Our Readers

I am pleased to be associated with our latest newsletter produced to coincide with the 51st IAEA General Conference (GC) and its Scientific Forum. In this issue, we are highlighting our work *within* the Member States. You will find items relating to our Nuclear Knowledge Management assist visits and INIS regional seminars. Both these aspects of our work will be featured in a special GC Side Event on Wednesday, 19 September 2007.

I was privileged to be involved in the Canadian 'assist visit' to the Bruce Power nuclear power plant. I was impressed by the strong desire shown to not only develop a meaningful knowledge management strategy but also implement practical knowledge management projects. The support given by senior plant management and the wholehearted involvement in a knowledge management self-assessment are very positive indicators of future success.

Recently I travelled to China and India, where I was invited to present my vision and strategy for INIS over the next five years along with an update on nuclear knowledge management activities. I was impressed by the commitment to INIS shown in these INIS Centres. It built on the strong impression that I gained during my earlier visit to the Canadian INIS Centre. The many activities have produced very healthy usage figures for the INIS database in these countries, along with the realization that — as with any product or service — still more could be done. The visits provided me with the opportunity to discuss key issues for individual INIS Centres. It is my belief that no two centres are alike. Such direct contact has served to augment the feedback gained from the major survey of INIS Liaison Officers, due for completion later this year.

I would like to draw your attention to two other items in this issue. On the back cover you will find an update about Nucleus. During my travels it was apparent that this IAEA information resource has yet to achieve the penetration into Member States that it merits. It is a system which has been requested by Member States for some years. So I encourage you to access Nucleus and discover for yourself the richness of its content.

Last, but by no means least, the June Conference on Knowledge Management in Nuclear Facilities — the facts and figures speak for themselves. However, if you did not manage to participate in the conference, I would recommend that you turn to page 8 and read the views of Dave Torgerson, the Conference Chair. Dave was kind enough to agree to an interview with myself immediately after the conference. I believe that you will find his comments enlightening, as he reflected not only on the conference itself but on the future for nuclear knowledge management.

In conclusion, I hope that you will find items in this issue that stimulate your interest and encourage your closer connection with our nuclear information and knowledge management activities.

Robert Workman
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IAEA Department of Nuclear Energy
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Photo: E. Dyck, IAEA

Assisting Lithuania in NKM

In March 2007, experts from Canada, UK, USA, and the World Association of Nuclear Operators (WANO) joined IAEA nuclear knowledge management experts on a mission to the Ignalina nuclear power plant (INPP).

Since the two units of the INPP are considered for shutdown, and a potential new build is pending, the focus was on preserving and transferring nuclear knowledge, and assisting the plant staff in developing new skills and competences in the areas of decommissioning and radioactive waste management. Presentations on good practices in NKM prepared the ground for intensive discussions with plant managers, followed by the experts' suggestions on KM strategies and tools to be implemented at INPP. The body of knowledge and expertise acquired at INPP over time, and initiatives and processes already in place, should be recognized as part of an effective knowledge management practices. The expert team recommended that the IAEA support a comprehensive knowledge-loss risk assessment, including operation and decommissioning activities, organize a follow-up mission, and involve the Lithuanian counterpart in the IAEA NKM activities.

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Knowledge Management for Canadian Nuclear Power Plants

In April 2007, an expert mission to Canada provided advice and assistance on NKM to two nuclear generating stations: Ontario Power Generation (OPG) Darlington and Bruce Power L.P. The "Assist Visits" were initiated by, and held in cooperation with, Atomic Energy of Canada Ltd. (AECL); they were the first ones to Canada and to CANDU stations.

The team of experts from Hungary, UK, USA and the IAEA met with senior managers of the Canadian utilities. They discussed issues of knowledge management that these nuclear power plants face. For example, one problem to be dealt with is the aging of plants, and preventive maintenance is crucial for safety. An important element of the assist visits was guided self-assessments, in which senior staff at OPG Darlington and Bruce Power assessed their existing knowledge management systems in open discussions with the IAEA expert team. This assessment helps managers identify strengths to build on, and weaknesses to be addressed in the knowledge management area. The assessment results and recommendations by the IAEA expert team will be used to initiate and improve programmes on NKM to increase the organizations' performance and efficiency.

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Experts from Hungary, UK, USA and the IAEA at the Bruce Power nuclear generating company, Ontario, Canada (Photo: Bruce Power)

***Ontario Power Generation (OPG)**, owned by the Province of Ontario, operates the Darlington Nuclear Generating Station. This station alone is capable of providing about 20 percent of Ontario's electricity needs. **Bruce Power L.P.** is Ontario's largest independent generator of electricity. The four nuclear reactors at the Bruce B generating station are capable of producing enough electricity for a city the size of Toronto.*

Strengthening Relationships with Member States

Meeting the INIS Liaison Officer for Canada

In April 2007, INIS Liaison Officer Ms. Monica Lim of Atomic Energy of Canada Limited (AECL) welcomed Robert Workman at the satellite office of the INIS Centre at Sheridan Park. The visit provided an excellent opportunity to discuss strategic INIS matters and activities at the IAEA and in Canada. AECL, along with other Canadian organizations, are major users of the INIS database.

While the INIS online database is actively promoted within AECL, many users prefer to use the CD-ROM version, because of its interface and functionality. The website of the INIS and NKM Section is a major tool in marketing INIS products in Canada. Currently, 22 Canadian universities, including almost all major universities, have access to the INIS database. Ms. Lim was pleased to receive from the INIS Secretariat a DVD with 4644 digitized full-text documents of the Canadian microfiche collection.

Workshop in Beijing

The national INIS Centre in China hosted a workshop on INIS and nuclear knowledge management on the occasion of Mr. Robert Workman's visit on 2–4 July 2007. Twenty-nine delegates from 15 nuclear-related organizations attended the meeting at the China Nuclear Information Centre (CNIC) in Beijing. In their opening addresses, INIS Liaison Officer (ILO) and Director of CNIC, Mr. Hou Huiqun, and Mr. Huang Wei, Director of the Division of Nuclear Affairs and International Organizations at the China Atomic Energy Authority, emphasized the importance of INIS and its potential for increased utilization within China's developing nuclear industry, and expressed the hope that the IAEA would continue to support INIS.

Photo: CNIC, P.R. China

Mr. Workman presented Mr. Hou with a DVD containing a digitized version of the 1015 Chinese microfiche documents in the INIS NCL collection

"INIS – Now and in the Future" was the topic of one of Mr. Workman's presentations. Over the past decade, input into the INIS database from China has been maintained at a consistently high level. The quality of the input, notably the indexing, is of a high standard, and Mr. Workman commended the increased usage of the INIS database in China on its various platforms. His talk also outlined the 5-Point-Plan for INIS, and highlighted key aspects of the current major survey of INIS Liaison Officers. He also provided responses from the INIS Secretariat to the key recommendations of the 2006 INIS Liaison Officers Meeting. The presentation on the IAEA Nuclear Knowledge Management programme stressed some activities of potential interest to China. Its involvement in the Asian Network for Education in Nuclear Technology (ANENT) is a good indication that China is planning to become more involved in nuclear knowledge management.

Mr. Workman also conducted an interview with Ms. Xue Enjie, Director of the INIS Division at CNIC, and her colleagues to complete the ILO Survey. This raised interesting points for discussion, such as the IAEA portal *Nucleus*, marketing of INIS products to potential users, and the speed of access from China to the IAEA website and INIS online database. Mr. Workman also provided information on the International Nuclear Library Network, and encouraged the China Nuclear Information Centre to join this developing network.

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Visit to the Indian INIS Centre

Continuing his travel through Asia, Mr. Workman paid a two-day visit to the Bhabha Atomic Research Centre (BARC) on 5–6 July 2007, hosted by Mr. Vijai Kumar, INIS Liaison Officer for India, and Associate Director of the Knowledge Management Group, and Head of the Scientific Information Resource Division at BARC. This allowed for a discussion on the response from India to the ILO survey and on the many strategic issues raised in the survey.

At a seminar attended by more than 20 staff from BARC's Scientific Information Resource Division, Mr. Workman presented his vision and strategy for the future of INIS, outlined the IAEA Nuclear Knowledge Management programme, and addressed capturing tacit knowledge. Topics ranging from computer-assisted indexing and non-conventional literature (NCL) to Open Archives and Nucleus were taken up in the following discussion.

During the seminar Mr. Workman presented Mr. Kumar with a DVD containing a digitized version of the 1827 microfiche documents from India that are included in the INIS NCL collection. He complimented the Indian INIS Centre on its high level of contribution to the INIS database and continuous efforts to increase usage through its marketing activities.

Contact: Robert Workman; R.Workman@iaea.org

Photo: BARC, India

From left: Mrs. N. Bhaskar (BARC), Mr. R. Workman, IAEA, and Mr. V. Kumar, INIS Liaison Officer for India

Nuclear Energy Series

Since 2006, the Department of Nuclear Energy (NE) has been pursuing a new, structured approach for its publications. All NE publications are now classified under a common scheme

on three hierarchical levels:

1. Basic Principles and Objectives
2. Guidance Documents
3. Reports

and in four thematic areas:

- General
- Nuclear Power
- Fuel Cycle and Materials
- Waste Management and Decommissioning.

This new and systematic approach gives users a clear indication of the thematic area and level of a given publication and thus increases usability. It allows identifying gaps and systematically developing missing publications, and it improves the overall visibility of publications issued by the IAEA Department of Nuclear Energy.

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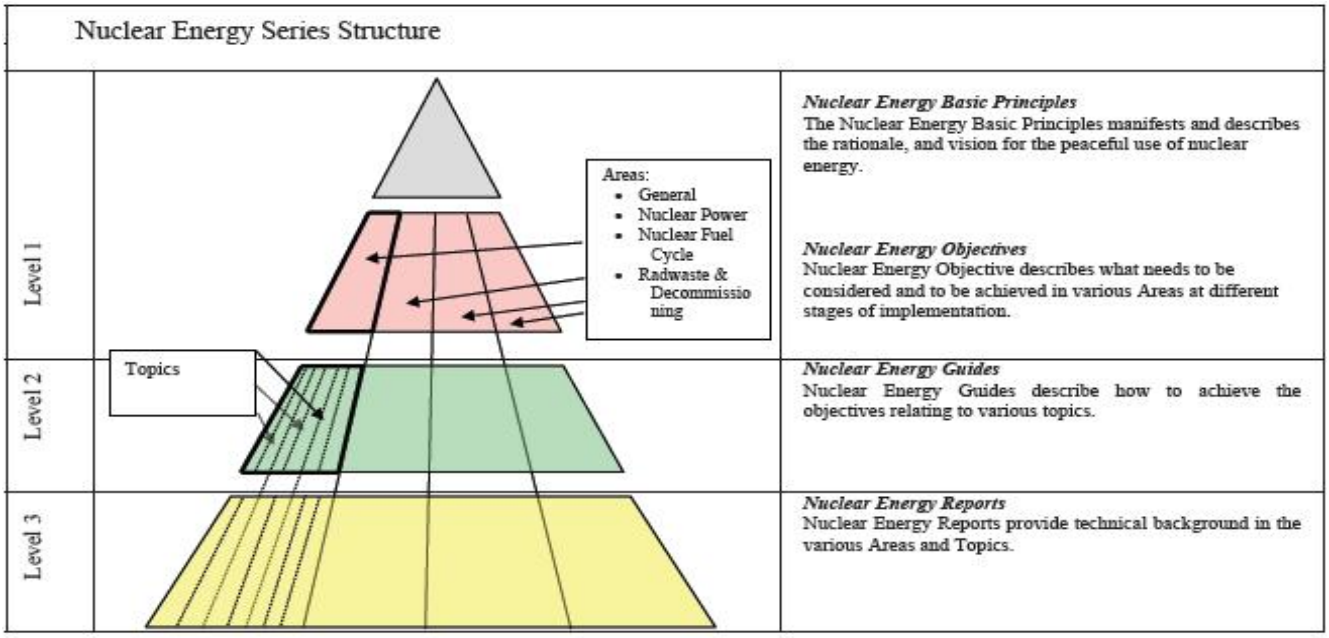


Fig. 1. Document System Structure of the Nuclear Energy Series (Source: Department of Nuclear Energy)

Nuclear Energy Knowledge Resources

http://www.iaea.org/inisnkm/nekr

Check out the new Nuclear Energy Knowledge Resources (NEKR) site — the right place for professionals in the nuclear field to access unique information and knowledge resources from the IAEA Department of Nuclear Energy (NE).

Recently, the former Nuclear Energy Knowledge Portal has been restructured, redesigned, updated and renamed *Nuclear Energy Knowledge Resources*. While keeping most of the traditional knowledge services that the Nuclear Knowledge Management Unit has offered so far, now this site has additional content and a search function, enabling users to search across more than 20 nuclear energy databases and 2000 publications from the NE Department, including full texts, where available. The search results will display the relevant databases, followed by the appropriate publications. A two-way link to and from Nucleus (see p. 20) joins this site with the IAEA's wider nuclear information and knowledge resources.

Contact: Marie-Laure Ruyssen; M.L.Ruyssen@iaea.org

News from Nuclear Knowledge Management

Knowledge Management in Nuclear Facilities: It's All About People

On 18 to 21 June 2007, more than 230 decision makers and professionals in the nuclear industry, regulatory organizations, governments, academia, vendors and other bodies met at the IAEA for the ***International Conference on Knowledge Management in Nuclear Facilities.*** *At the closing session Mr. Bertram Barré, France, who served as conference rapporteur, presented findings and recommendations from four conference sessions, keynote speeches and a policy forum. This article summarizes Mr. Barré's presentation.*

Looking back: This conference was organized as part of the response to resolutions of the IAEA General Conference between 2002 and 2006, which emphasized the importance of nuclear knowledge management (NKM). It also built on the first conference on *Nuclear Knowledge Management – Strategies, Information Management and Human Resource Development* organized by the IAEA in Saclay, France in 2004. At that time, knowledge management was still relatively new in the nuclear field.

Photo: D. Calma, IAEA

From left: Mr. T. Taniguchi, Deputy Director General, Department of Nuclear Safety and Security, Mr. Y. Sokolov, Deputy Director General, Department of Nuclear Energy, Mr. D. Torgerson, Conference Chair

Why now? The following factors make managing nuclear knowledge an important topic for the nuclear sector at this point in time:

- Rising concerns about the security of energy supply and climate change
- Improved safety and reliability of nuclear power plants
- A nuclear renaissance in Europe and the Americas, and continuing growth in Asia
- 'Changing of the guard' and bridging the demographic gap
- Human capital, i.e. knowledge may be the worst bottleneck for future nuclear programmes
- Fast progress in information technology (IT) and a strong IT culture in the young generation

Strategic contributions of NKM: Nuclear knowledge management can contribute to maintaining the core knowledge that must be in place to operate existing plants safely, help achieve gains in economic and operational performance, preserve existing knowledge and channel it towards future innovations, and assure the smooth and effective transfer of the knowledge from today's generation to the next one.

NKM as a management approach: In 2007, nuclear knowledge management is *known and used* as a management approach; still, there is room for improvement. However, key nuclear organizations have introduced and apply NKM as a corporate management approach with top-level commitment. Examples include:

- ***Regulators and Technical Safety Organizations***: Nuclear Regulatory Commission, USA, Gesellschaft für Anlagen- und Reaktorsicherheit (GRS), Germany
- ***Utilities:*** EDF, France, Energie Baden-Württemberg AG (EnBW), Germany, Bruce Power L.P., Canada
- ***R&D Organizations*****:** Korea Atomic Energy Research Institute (KAERI), Republic of Korea, Indira Gandhi Centre for Atomic Energy (IGCAE), India
- ***Vendors:*** Atomic Energy of Canada Ltd. (AECL), Canada, AREVA, France/Germany, and others
- ***Governmental Organizations:*** Atomic Energy Commission, India, and others.

Knowledge management is spreading fast in organizations; it plays a key role at the levels of strategy, human resource management, information management and process management.

NKM for national planning: The need to *actively* plan for the education of the next generation of nuclear experts is recognized. Nuclear knowledge is appreciated as scientific and technical heritage. Managing, preserving and building on the knowledge we have accumulated is an important *inter-generational responsibility.* Nuclear knowledge is a "must" for safety.

Photo: E. Dyck, IAEA

Participants at the Opening Session of the Conference

On my return to Islamabad, I want to thank you for your very successful Conference. This is a landmark for developing a solid regime for nuclear knowledge management all over the world.

Dr. Ishfaq Ahmad, Special Advisor to the Prime Minister of Pakistan

Young Generation of Nuclear Experts: A recent survey among young nuclear professionals in 37 countries (300 responses) found that over 40 per cent of young professionals in the nuclear industry find their jobs "okay" to "very disappointing".

Employers should support the participation of young nuclear professionals, and use them as 'ambassadors' in public outreach and recruitment. Management practices should promote professional growth, quality work, and efficient use of resources. Mentoring programmes should become standard industry practice.

It was a great pleasure to participate in this conference. The choice of speakers, the discussions and the organization of the conference were excellent. I congratulate the Scientific Secretaries and their colleagues at the IAEA for organizing such a great conference.

Dr. Baldev Raj, Distinguished Scientist & Director, Indira Gandhi Centre for Atomic Research, India

Role of the IAEA: The IAEA is in a position to be *the global focal point and driver* for NKM work in Member States, in cooperation with organizations such as the Nuclear Energy Agency (NEA), the World Association of Nuclear Operators (WANO) and others. Past activities of the IAEA were instrumental to raise awareness, such as the 2004 NKM Conference, share experiences through guidance publications, assist in self-assessments of the status of knowledge management in nuclear power plants, and network education and training by supporting activities and associations such as the Asian Network for Education in Nuclear Technology (ANENT), the World Nuclear University (WNU), the European Nuclear Education Network (ENEN) and others.

Some Findings and Recommendations: NKM has become an established best practice in the management approach for nuclear organizations. This had not been the case in 2004, and the IAEA's NKM programme should continue developing guidance and promoting it through NKM assist visits, so that this becomes a lasting trend. Networking education and training should continue. The IAEA's NKM programme should address more national and international levels, in addition to organizations and their management approaches, and take into account the nuclear renaissance and rising demands for nuclear knowledge.

Specific future activities for the IAEA were proposed, including a publication on the *Status of knowledge management programmes in nuclear organizations*, development of, and support for, national nuclear knowledge assessments, addressing national and global workforce planning, including the current status, and expectations on a 10 to 30-year timeframe, and understanding nuclear knowledge as intellectual capital for organizations and nations. A follow-up conference in 2010 was recommended by the Conference Chair.

The conference encouraged the IAEA to remain *the* global forum for advancing the application of NKM, and recommended that the IAEA contribute to establishing a *global nuclear knowledge culture*.

Contact: Peter Gowin; P.Gowin@iaea.org, and Yanko Yanev; Y.Yanev@iaea.org

All materials related to the conference are available for download as PDFs, including programme, speeches, keynote addresses, papers and presentation materials, at

http://www.iaea.org/inisnkm/nkm/conference2007.html

The International Conference on Knowledge Management in Nuclear Facilities, 18–21 June 2007, was organized by the IAEA Department of Nuclear Energy and the IAEA Department of Nuclear Safety and Security, in cooperation with:

European Atomic Forum (FORATOM),

European Commission (EC),

Japan Atomic Energy Agency (JAEA),

Nuclear Energy Institute (NEI),

OECD Nuclear Energy Agency (OECD/NEA),

World Nuclear Association (WNA)

World Nuclear University (WNU).

Session 1: Knowledge Management for Safety and Regulation
Session 2: Knowledge Management for Improved Performance and Economics
Session 3: Knowledge Management for Innovation
Session 4: Human Resources, Education, Training and Public Information
Four Poster Sessions and a Young Generation Panel

Scientific Secretaries:

P.J. Gowin
NKM Unit,
IAEA Department of Nuclear Energy

Y. Yanev
Head, NKM Unit,
IAEA Department of Nuclear Energy

C. Viktorsson
Div. of Nuclear Installation Safety,
IAEA Department of Nuclear Safety and Security

(Photos: IAEA)

Photo: E. Dyck, IAEA

Knowledge Management and Nuclear Renaissance

David F. Torgerson is Senior Vice President and Chief Technology Officer at Atomic Energy of Canada Limited (AECL). Mr. Torgerson served as Chair of the International Conference on Knowledge Management in Nuclear Facilities, IAEA, 18–21 June 2007. He shared his views on the Conference in this interview.

Mr. D. F. Torgerson

What is your general impression of the conference?

D. Torgerson: My overall impression is very positive. It was a very successful conference, and the papers and presentations went very well. In my first address to the Conference, I said that in my view there are three elements to a successful knowledge culture for nuclear technology: strong foundations, robust processes, and effective applications to the entire nuclear life cycle. All three of these elements have to be healthy to have a successful knowledge system. As I listened to the presentations I was pleased to note that there has been progress in all of these three areas.

I also want to mention the evolution of our thinking from 2002, when I was at an IAEA policy meeting on managing nuclear knowledge. In 2002, we were concentrating on problems. Now we have moved from problem definition to the problem solution phase. In more than 80 percent of the presentations, the focus has been on solutions. In 2004, when the Saclay conference was held, the nuclear industry was in a transition year. Now we have five years of maturity in nuclear knowledge management, and people are talking about what they are putting into place to address the knowledge gaps. So I am very encouraged; whenever you move from a problem mode to a solution mode, this is a very positive transition.

One of the foundations, of course, is policy. It is clear to me that there are different challenges in environments where the government policy is, if not positive, at least neutral towards nuclear power, as opposed to environments where the policy is in fact against nuclear power. Where the policy is neutral or positive, the focus is on attracting the best people, and on the mechanisms for knowledge transfer from the older generation. So we had a lot of discussions on those mechanisms, and some very creative approaches have been initiated. But in countries where the policy is to phase out nuclear power, it will be more difficult to attract the right people into the industry.

I was very impressed by the session with the **Young Nuclear Generation**. It was just great! Really bright, articulate young people are coming into our industry. It was interesting to note that a survey showed that ninety percent of them say they are mobile. This means that these young people will move to where the future nuclear vision is most positive. So it is up to our generation to create a strong and compelling vision to attract these students.

Tell us about three things you've learned as a result of participating in, and chairing, this conference.

I was impressed by the large amount of **new hiring** by many organizations, and the aggressiveness in adopting new knowledge management methodologies. I have more business cards from this conference from people with 'knowledge management' in their titles than ever before. I did not see that at the policy meeting in 2002. So we have seen a tremendous change; now, many organizations have professionals in place who are responsible for knowledge management. For vendors, the message is that when you buy a product, you are also buying into a knowledge-based company with strong technical programmes and robust mechanisms to maintain and enhance knowledge.

I also noticed the emphasis on **training** by many organizations. A university or college degree is really just the starting point. Organizations are taking generalists and making them into nuclear experts. It seems to be a trend that companies no longer think they can simply hire graduates to obtain all the requisite knowledge; they recognize that they need formal training processes.

Again and again, the speakers stressed the importance of **people**. So I should emphasize once more the importance of a strong nuclear vision to attract, motivate, and sustain the knowledge workers who are entering the nuclear field.

Can you foresee another NKM Conference in three years' time? What could be the focus of such an event?

As I said in my closing statement, I would like to suggest to the IAEA, the other sponsors, and to the Conference organizers that it would be appropriate to have a follow-up conference. Three years from now would be just about right. I see a logical progression from problem definition to solutions, and then moving towards three themes that would be useful to review in the future: first, the **lessons learned** from what has been initiated; secondly, the **best practices** coming out of the various initiatives, which countries interested in nuclear power could consider adopting; and then thirdly, for the established countries, **sustaining the nuclear knowledge culture**. I also think that we should start looking at mechanisms for **knowledge transfer from established nuclear countries** to those that are adopting nuclear power for the first time.

What is your opinion on the 'Nuclear Renaissance'?

In 2002, everyone was saying that the nuclear renaissance was coming. In 2007, we see that the renaissance has actually arrived. Many equate the renaissance to building new nuclear reactors, but I believe that there is another very large and important trend. Over the last five years, many utilities have decided to refurbish their existing reactors, and I expect that much of the current nuclear fleet will be extended beyond the original design life. So, life extension is the activity that is actually leading the renaissance. The other trend is that many countries have initiated the various processes leading to new builds, and this trend will pick up momentum over the next few years. Then we have unprecedented interest coming from non-nuclear countries. That is why they were at this Conference, asking the question: "How do we overcome our knowledge gaps to establish nuclear technology?"

Therefore, I believe we are into the nuclear renaissance now, and over the next few years we will see a lot more commitment to new builds in several countries. The imperative is there: the three "drivers" are the environment, the cost and cost stability of the alternatives, and the reliability of supply of the alternatives.

How do you see Nuclear Knowledge Management moving forward, both at the IAEA and in Member States?

My recommendation would be that the Agency establish a framework to get Member States involved in the areas I mentioned above — the lessons learned, best practices, sustaining knowledge culture, and knowledge transfer to new nuclear adopters — and develop them over the next three years. A good mechanism might be to establish a **'Community of Practice for Nuclear Knowledge Management'**. There should also be a specific major output since this focuses the effort — I would suggest a reference document around the theme **'Experiences and Best Practices for Nuclear Knowledge Management'**.

There are many other sub-topics that need further exploration. For example, I can see laying out a matrix of responsibilities in the knowledge infrastructure – organizations such as governments, vendors, suppliers, utilities, regulators, etc., against the various activities for maintaining a strong knowledge culture. There are also many important issues around the transfer of knowledge to countries wishing to adopt nuclear power, including the protection of intellectual property.

So, there are some very rich areas for development and consensus building, which has always been a key role for the IAEA. In many ways, knowledge management is the overall framework into which all the other IAEA programmes fit. Therefore, a conference in three years' time could be seen as an **'Experience Summit'** to pull it all together.

Interview by R. Workman and E. Dyck

The Conference in Numbers

232	Participants, including
56	participants from developing countries
43	Member States
10	international organizations
145	contributions, papers and keynote addresses presented during the conference
42	women participated, including
28	women speakers
Several thousand	emails sent and received
More than 1 year	of preparation time

Where participants came from...

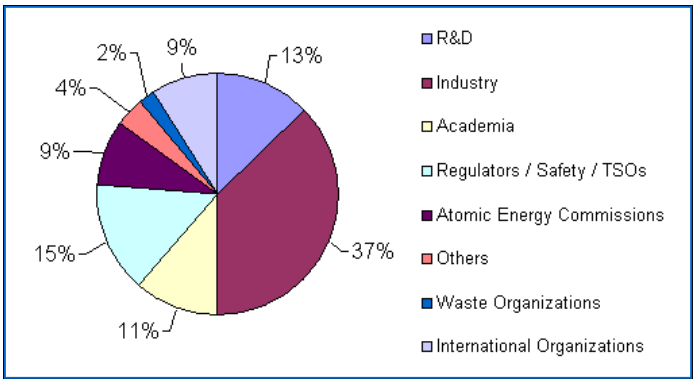


Fig. 2. Percentage of participants according to types of organization (n=232)

(Source: P. Gowin)

Continued on p. 19

Developing New Nuclear Information Resources

Nine experts from five IAEA Member States and CERN met at the IAEA on 4–7 June 2007 for the **Technical Meeting on the Development of New Nuclear Information Resources and Their Integration.**

This meeting provided a forum for sharing experiences and best practices in knowledge preservation and archiving for long-term access, as well as harvesting and building comprehensive knowledge repositories from the Internet. Following presentations and intensive discussions on related national or institutional programmes and activities, the participants drafted clear recommendations on the IAEA's role as an international authoritative nuclear information resource.

Photo: E. Dyck, IAEA

Participants listening to a presentation at the Technical Meeting on the Development of New Nuclear Information Resources and Their Integration, IAEA, 4–7 June 2007

The experts articulated a compelling vision of '*collecting and connecting nuclear information and knowledge workers*', and endorsed the authoritative role that the IAEA plays through its Nuclear Knowledge Management Unit. To assure continued leadership in this respect, the IAEA should initiate collaborative and innovative services and build a Nuclear Web.

Two technical approaches were advocated: hosting a nuclear information search engine with a broad set of nuclear information data, and building a semantic layer.

Also of importance are an analysis of today's information environment, the IAEA position on issues such as content, nuclear information search, intellectual property rights, potential semantic services, and technical and social aspects, and forming and organizing knowledge expert groups and their communication with the IAEA.

Contact: Marie-Laure Ruyssen; M.L.Ruyssen@iaea.org

NKM Guidance Publications

During the past months, international experts met at the IAEA for technical and consultants' meetings to work with our NKM experts on developing guidance documents on different aspects of nuclear knowledge management.

Nuclear Knowledge Management Objectives

The purpose of this publication is to describe the highest level issues and objectives for nuclear knowledge management that are commonly agreed to be relevant or applicable to activities in the nuclear sector as a whole, including power and non-power applications, and which are anticipated to be valid over a long period of time. The target audience for this publication includes decision makers in Member States' governments, including regulators, industry, R&D centres and academia concerned with nuclear issues.

This publication is part of the *Objectives* level of the IAEA Nuclear Energy Series, and describes what needs to be considered and achieved at different stages for the peaceful use of nuclear energy in the specific area of nuclear knowledge management. The publication was reviewed and endorsed by the IAEA's Standing Advisory Group on Nuclear Energy (SAGNE) in April 2007. The expected publication date is late 2007.

Contact: Peter Gowin; P.Gowin@iaea.org

Photo: A. M. Mortada Aly, Canada

The Technical Meeting on Knowledge Management Objectives was held at the IAEA on 15–17 May 2007

Knowledge Management for Radioactive Waste Management

The purpose of this publication is to provide guidance to decision-makers from governments and private industry, including regulators, facility owners and operators, on planning, implementing and sustaining critical nuclear and institutional knowledge necessary for safe and efficient radioactive waste management. The publication covers salient aspects of managing tacit, implicit and explicit knowledge, both in document (record) form and as skills and experiences in human beings. The publication makes recommendations to radioactive waste management organizations and their regulators on how to inte-

grate a competent knowledge management system into their management approach to their facility or its regulation.

This publication is part of the Nuclear Energy Series on the level of *Guidance;* it is due for publication in 2008.

Contact: Peter Gowin; P.Gowin@iaea.org

Photo: E.Dyck, IAEA

Experts from 12 Member States met at the IAEA Technical Meeting on Knowledge Management for Radioactive Waste Management, IAEA, 7-10 May 2007

Developing Knowledge Portals for Nuclear Power Plants

Knowledge management experts from nuclear power plants (NPPs) and research centres in Bulgaria, Canada, Hungary, Germany, Slovenia, the Russian Federation and the USA met at the IAEA Headquarters in spring 2007 to assist the IAEA in developing '*Guidelines for the Development of Knowledge Portals for Nuclear Power Plants*'.

The new document will cover the main design principles and typical content of such portals for nuclear power plants (NPPs). These principles and contents are based on a combination of different designs which have been realized in various Member States. Knowledge management portals provide a structured system for easy, computer-based access to any information that can be used by staff of an NPP to maintain and improve their own, and hence their NPP's, productivity and performance. The expected publication date is early 2008.

Contact: Andrey Kosilov; A.Kossilov@iaea.org

Photo: E.Dyck, IAEA

Intensive discussions took place during the Consultants' Meeting on Guidelines for the Development of Knowledge Portals for Nuclear Power Plants, IAEA, 26 February–2 March 2007

Applying Guidance in Member States

Cooperation with the IAEA Department of Technical Cooperation (TC) supports the Section's NKM Unit in assisting Member States in nuclear knowledge preservation. Two regional workshops were held in May and June 2007 within the framework of a TC Project on ***Strengthening Capabilities for Nuclear Knowledge Preservation*** (RER/0/0270).

Regional Workshop on Managing Nuclear Knowledge, Karlsruhe

Thirty-three experts from 18 IAEA Member States met at the Forschungszentrum (Research Centre) Karlsruhe, Germany, in May 2007 to share information on implementing nuclear knowledge management (NKM), present lessons learned, and report about national experiences and good practices in the subject area. The aim was to make the results of this meeting directly applicable to the nuclear sector workplace. The experts gave 24 topical presentations and presented 15 national reports. Activities for a new regional European project on nuclear knowledge preservation in 2008–2010 were also proposed, based on national reports submitted by delegates, and intensive discussions on three main topics: knowledge management for nuclear power, knowledge management for regulatory bodies, and knowledge management for R&D organizations.

The Workshop was held in cooperation with the Government of the Federal Republic of Germany through the Forschungszentrum Karlsruhe and the German Alliance for Competence in Nuclear Technology. The **IAEA Division of Nuclear Power** also actively supported this event.

Contact: Andrey Kosilov; A.Kossilov@iaea.org

Regional Workshop on Preserving Nuclear Knowledge, Obninsk

In June 2007, a Regional Workshop on **Establishing Policies and Strategies to Preserve and Further Enhance Nuclear Knowledge** was held in Obninsk, Russian Federation, in cooperation with WANO and the Government of the Russian Federation through Rosatom and the State Central Institute for Continuing Education and Training.

Thirty-two managers from nuclear industry, nuclear regulatory bodies and technical support organizations from Armenia, Bulgaria, Canada, Hungary, Kazakhstan, Romania, the Russian Federation, Slovenia, Slovakia, Ukraine, and the USA exchanged experiences and information on establishing policies and strategies to preserve and further enhance nuclear knowledge in nuclear industry operating organizations. The workshop discussions covered policy issues and design practices for NKM including facility life cycle considerations, and an organiza-

tional overview model. The meeting confirmed the IAEA approach to promote and support nuclear knowledge management as a strategic resource for achieving competitive advantage and sustainability, and maintaining a high level of safety.

Contact: Yanko Yanev; Y.Yanev@iaea.org, and Andrey Kosilov; A.Kossilov@iaea.org

Photo: A. Kosilov, IAEA

From left: IAEA NKM experts Mr. A. Kosilov, and Mr Y. Yanev, in discussion with Mr. Z. Pasztory, Hungary

Regional Workshop on Managing Nuclear Knowledge, Tokyo

An Asian **Regional Workshop on Managing Nuclear Knowledge (NKM)** will be held in Tokyo, Japan, on 22 – 26 October 2007, hosted by the Tokyo Institute of Technology. This event will be the first IAEA NKM-related activity to be held in Japan.

The workshop will focus on international initiatives to enhance and strengthen nuclear knowledge; policy and strategy building to implement various initiatives; expected roles and contribution of NKM in helping to increase nuclear power generation and develop nuclear-related innovative technology; and education and training of the next generation of nuclear specialists. Due to the uniqueness of the venue—a graduate school on nuclear engineering—a special session will be organized by young researchers, including students and postgraduates, to discuss ideal environments for acquiring nuclear knowledge and transferring it to the next generation of nuclear specialists.

Contact: Keiko Hanamitsu; K.Hanamitsu@iaea.org

Networking in Nuclear Education and Training

WNU Summer Institute 2007

The third annual Summer Institute of the World Nuclear University (WNU-SI) was held in Daejeon, Republic of Korea, from 14 July–24 August 2007. This WNU-SI was hosted by the Korean Atomic Energy Research Institute (KAERI), the Korea Hydro & Nuclear Power Co. Ltd. (KHNP) and the Korean Nuclear Society (KNS). As in previous years, the IAEA, through its TC programme, is supporting this WNU-SI, in particular participants from developing country. INIS and NKM Section Head Mr. Robert Workman was one of the lecturers and conducted a workshop on knowledge management.

Learn more about the WNU and the

2007 Summer Institute at:

http://www.world-nuclear-university.org/

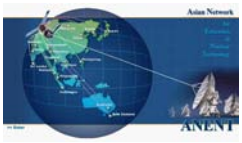
2007 Trieste School of Knowledge Management

For the fourth time, a School of Nuclear Knowledge Management is held at the Abdus Salam International Centre for Theoretical Physics (ICTP) in Trieste, Italy, this year from 24–28 September 2007. This school for nuclear experts from Member States is jointly organized by the IAEA, the ICTP and the World Nuclear Association (WNA, London) as a World Nuclear University Event.

Some 50 scientists and managers in academia, industry and the government sector, who are in charge of managing nuclear knowledge in any form—as data, human resources or institutional knowledge—are participating in this unique training event. As a result of the course, participants are expected to apply what they have learned in nuclear knowledge management in their workplace in the nuclear sector.

Contact: Yanko Yanev; Y.Yanev@iaea.org and Andrey Kosilov; A.Kossilov@iaea.org

ANENT Update



The aim of the Asian Network for Education in Nuclear Technology (ANENT) is to network nuclear related organizations in the Asia and Pacific region, and develop a web-based education and training system that will complement existing education mechanisms. Since January 2007, the IAEA Technical Cooperation (TC) Department has been supporting ANENT. Several Member States have indicated their intention to join this network, in addition to the initial 12 member countries in the region.

Representatives of all countries participating in ANENT are expected to attend the next National Coordinators (NC) Meeting, scheduled for November 2007 in the Asian region. This meeting will be the first annual NC meeting for ANENT's new members. It will discuss achievements to date and new developments to be imple-

mented over the next four years. Since the creation of ANENT in 2004, the network has focused on developing its own web portal (**www.anent-iaea.org**) and a cyber learning platform for information sharing, drafting academic reference curricula in nuclear engineering, and revising initial terms of reference for coordinating the ANENT program.

Two expert missions were already held in early 2007. The first one surveyed materials available at the IAEA that would be suitable for e-learning programmes and training courses. The second mission reviewed technical and operational issues of the cyber platform. Upon recommendation of the mission experts, ANENT's cyber platform will soon go into operation on a trial basis.

KAERI, the Korean Atomic Energy Research Institute, which is playing a leading role in this activity, successfully demonstrated an on-line training course during the International Conference on Knowledge Management in Nuclear Facilities at the IAEA in June 2007 (see p. 6).

Photo: D. Calma, IAEA

Mr. Yong-Chang Joo (right), Nuclear Training Centre of the Korean Atomic Energy Research Institute (KAERI), explaining the ANENT Web Portal and Cyber Learning Platform during the International Conference on Knowledge Management in Nuclear Facilities, IAEA, June 2007

Contact: Keiko Hanamitsu; K.Hanamitsu@iaea.org

News from INIS

The International Nuclear Information System

New INIS Member: Seychelles

The Seychelles has joined INIS as the 118th Member State. This brings the total number of INIS Members to 141.

The national INIS Centre for the Seychelles is located within the Ministry of Foreign Affairs. INIS Liaison Officer is **Mr. William M. Bell**, and **Ms. Sandra Michel** is the Alternate INIS Liaison Officer.

Supporting INIS Centres in Member States

The IAEA, through the INIS Secretariat, supports Member States in establishing, upgrading or reactivating national INIS Centres. Several activities have taken place during 2007. In close cooperation between the INIS Secretariat and the IAEA Department of Technical Cooperation (TC), four new national projects were launched, for Burkina Faso, Kenya, Niger, and Uzbekistan, while three ongoing TC projects support INIS Centres in Egypt, Tajikistan and the United Republic of Tanzania. In a spirit of cooperation between INIS Members, fellows from these countries receive training in some well-established INIS Centres, such as France, India and the Syrian Arab Republic (see p. 17).

In March, April and May 2007, INIS expert visits to three Member States took place to support the active participation of these centres in INIS.

Egypt: Upgrading the Information and Documentation Centre of EAEA

In March 2007, Ms. Taghrid Atieh, Leader of the Section's Capacity Building and Liaison Group, visited Cairo and Alexandria to review achievements and progress of this TC project, and discuss with counterparts additional requirements that may be needed to successfully complete the project. She also assessed the available infrastructure and use of equipment provided to the Nuclear Power Plant Authority (NPPA), the Nuclear Materials Authority (NMA) and the Alexandria branch of the Egyptian Atomic Energy Authority (EAEA).

In meetings with INIS Liaison Officer Ms. Fayka abd Elhalim Ibrahim of the Atomic Energy Authority and Ms F. Awad, Head of the Information and Documentation Centre (IDC), a working plan for 2007, human resource allocation, fellowship training and the need for additional equipment were reviewed.

Discussions with officials at NPPA and NMA resulted in their agreement to provide IDC with theses and other literature for input to the INIS database. A visit to the EAEA Alexandria branch provided an opportunity for the expert to present to the staff the INIS database on the Internet and CD-ROM, the Nuclear Science Abstracts and the INIS document delivery service. A national INIS seminar to inaugurate the National INIS Centre upon completion of the TC project is also planned.

Contact: Taghrid Atieh; T.Atieh@iaea.org

Upgrading Uzbekistan's INIS Centre

From left: Mr. M. Salimov, Alternate ILO for Uzbekistan, Mr. A. Umaraliev, Ms. T. Atieh, IAEA, Ms. M. Kadirova, ILO for Uzbekistan and Mr. K. Yuldashev

Photo: T.Atieh, IAEA

A trip to Tashkent in April 2007 enabled Ms. Atieh to ascertain the status and present infrastructure of the national INIS Centre at the Institute of Nuclear Physics. In discussions with INIS Liaison Officer Ms. Makhtuba Kadirova and staff of the Institute, activities for use of the INIS database, training and outreach were addressed. Additional sources of nuclear information, in particular literature available at the Ministry of Health, were identified for possible input to the INIS database. Also, it was agreed that UNDP would host the website of the national INIS Centre, pending a reliable Internet service at the Centre. Visits to the Academy of State and Social Construction and the Library of the Academy of Sciences opened doors for valuable additions to INIS information resources of Uzbek scientific and technical literature.

Contact: Taghrid Atieh; T.Atieh@iaea.org

Reactivating the National INIS Centre in Qatar

Recently the Supreme Council for the Environment and Natural Resources requested the IAEA's assistance in activating the country's contribution to, and participation in, INIS. Thus in May 2007, Ms. Atieh undertook an expert visit to conduct training sessions and give lectures at the national INIS Centre. These focused on INIS operation, roles and responsibilities of all parties involved in INIS, usage of INIS in Qatar and outreach. The sessions provided hands-on training on working with the INIS database on the Internet and on CD-ROM, and the INIS NCL collection on both media. The National Library and the Information Centre of Qatar University offer valuable collections of publications; the INIS Liaison Officer was encouraged to follow up for potential input to INIS information resources, and promote INIS products and services in Qatar.

Contact: Taghrid Atieh; T.Atieh@iaea.org

Enhancing Partnerships

The International Centre for Scientific and Technical Information (ICSTI) held an International Seminar on Scientific and Technological Innovation: National Experience and International Cooperation and its annual Committee Meeting at the Vienna International Centre (UNIDO) in May 2007. ICSTI, located in Moscow, Russia, is one of the 23 international organizations that are members of INIS. A presentation by INIS Unit Head Mr. Anatoli Tolstenkov on *International Partnerships in Managing INIS and Nuclear Knowledge* informed over 60 participants on the history, major products—the INIS database, NCL collection and thesaurus—and the challenges that INIS faces in today's nuclear information environment. Changes in supply and demand, and in users and their requirements for nuclear information, are important "drivers" for the strategic development of INIS. By contributing to IAEA knowledge management activities, INIS will evolve into a comprehensive knowledge repository. Enhancing international partnerships with organizations such as ICSTI, ETDE, NEA and the Joint Institute for Nuclear Research (JINR) will help create new synergies and enhanced usage of the International Nuclear Information System.

Photo: ICSTI

Front row from left: Mr. V. Kodola, Director, ICSTI; Mr. A. Sissakian, Director, JINR; Mr. A. Tolstenkov, INIS Unit Head, IAEA; Second row: Ms. M. Tumanova, INIS Liaison Officer and Head of Department, ICSTI; Mr. D. Kamanin, Head of Department, JINR

During the Seminar, officials of ICSTI, JINR and the IAEA agreed on a preliminary plan for future cooperation and joint activities in 2007 and 2008, including information exchange, access to organizational information resources and organizing joint events. A visit of the Head of the INIS and Nuclear Knowledge Management Section to Moscow in October 2007 will further enhance relations between the IAEA and these partner organizations.

A small exhibition on INIS, Nuclear Knowledge Management and the IAEA Library, as well as a tour of the Library and a demonstration of the INIS database, created much interest among the participants of this seminar.

Contact: Anatoli Tolstenkov; A.Tolstenkov@iaea.org

Interactive CAI for Member States

At their 33rd meeting in late 2006, the INIS Liaison Officers "*commended the INIS Secretariat on progress of further development of the CAI system, and strongly supported the development of online access to the IAEA CAI system for INIS National Centres*".

In response to this recommendation, the INIS Secretariat has installed a remote access feature to the interactive Computer-Assisted Indexing (CAI) system. This feature allows INIS Centres to send FIBRE files of national input *without indexing* to the INIS Secretariat, where the files are uploaded to the local CAI server at the IAEA. Subject specialists in the National INIS Centres can access the CAI system with a user identification (UID) and via a secure connection that guarantees the encryption of sensitive data transmitted over the Internet. Input files can be indexed directly online in the CAI system on the IAEA server, using all available interactive features such as highlighting and thesaurus navigation. The completed files will be directly included in the INIS production system as national input.

Several INIS Member States have volunteered to participate in a pilot project to test this remote access system, including France and Germany, and later Brazil and China. Initially, one UID will be issued per country. The tests will also facilitate developing guidelines for online CAI for all Member States. Once the procedure and workflow are determined, the INIS Secretariat can issue as many UIDs as necessary. Preliminary results of this pilot project will be presented at the ETDE/INIS Joint Technical Meeting in November 2007 at the IAEA.

Contact: A. Nevyjel; A.Nevyjel@iaea.org

Joint Thesaurus: Updating the Radioisotope Terminology

A controlled nuclear vocabulary — descriptors of the ETDE/INIS Joint Thesaurus — facilitates retrieval of nuclear literature in science and technology. Experts at the INIS Secretariat and at the Energy Technology Data Exchange (ETDE) are continuously improving the terminology of this thesaurus.

While preparing an input record for the INIS database, a new descriptor is proposed if an entirely new concept is encountered for which no suitable descriptor can be found in the thesaurus, or if an important concept cannot be clearly indexed with existing terminology. Recently, new isotopes in the scientific literature led the INIS Secretariat to systematically investigate gaps in the isotope terminology of the thesaurus and propose new descriptors.

Reliable sources such as the National Nuclear Data Centre at Brookhaven National Laboratory, USA (**http://www.nndc.bnl.gov/**), the Lund Nuclear Data Service at Lund University, Sweden (**http://nucleardata.nuclear.lu.se/nucleardata/**), and the Jefferson Laboratory in Newport News, Virginia, USA (**http://www.jlab.org/**) are consulted to identify isotopes which have no representative descriptor in the joint thesaurus, and to learn about their properties. New descriptors are proposed for those isotopes which show reliable experimental data (decay mode, half-time), and associative terms are developed. In case of inconsistencies, further research is performed, primary sources are consulted and results are discussed with the thesaurus specialist at ETDE. The INIS Secretariat and ETDE decide jointly on the inclusion of a new term.

In the first half of 2007, 273 isotopes of 60 elements were added to the isotope terminology of the ETDE/INIS Joint Thesaurus.

Example:

SEABORGIUM 270
BT1 alpha decay radioisotopes
BT1 even-even nuclei
BT1 heavy nuclei
BT1 minutes living radioisotopes
BT1 seaborgium isotopes
BT1 spontaneous fission radioisotopes

The INIS Secretariat will continue to update the present terminology by adding further isotope descriptors and their associated terms. Subject to available resources, half times and decay modes of existing isotope descriptors may in future also be modified to reflect new research results.

Contact: C. Krieger-Levine, C.Krieger@iaea.org

Progress in Digital Preservation

The most significant project in digital preservation is the conversion of INIS non-conventional literature from microfiche to digital media. To date, the microfiche collections of over 30 INIS Members were successfully digitized and full texts uploaded to the INIS online database. Recently, the microfiche collections of Canada, China and India were completed. Mr. Robert Workman, Head of the INIS and Nuclear Knowledge Management Section, was able to present the digitized collections on DVD to the INIS Liaison Officers in these countries (see p. 3).

Photo: T.Kalapurackal, IAEA

Digitizing documents at the IAEA: INIS Imaging Technician Branko Krznaric (left) and Yves Reynold-Pulido, OCR Specialist

The Serbian knowledge preservation project on the RA type reactor was successfully completed in summer 2007. Documents on design, analysis, construction, operation, and decommissioning were included in the INIS database with indexed metadata and digitized full text. The digitization of oversized design and engineering plans of the reactor plant was a real challenge. Knowledge preservation of the RB-type reactor of Serbia will be the next project.

In close cooperation with other IAEA divisions, the INIS Secretariat continues to identify material that is highly relevant for digital preservation. To date, all General Conference documents of the past 30 years were digitized and are now being made available online on the IAEA web site. An agreement with the IAEA Policy Making Organs (PMO) will allow the integration of these documents into the INIS database with indexed metadata and full text.

Another major undertaking is the digital preservation of technical reports of Member States, kept at the IAEA's Library that date back to the 1940s. The collection includes over 50 000 printed reports, and most of them are not yet included in the INIS database.

A pilot project, in which 340 reports were digitized and included in the INIS database, helped to establish procedures. It is estimated that the project to digitize the complete Library collection may last up to 10 years, depending on available resources. An automated Metadata Creation/Editing Software Tool will assist and accelerate the creation of metadata. The cost of this tool will be shared by the IAEA Library and the INIS and Nuclear Knowledge Management Section.

Contact: Seyda Rieder; S.Rieder@iaea.org

INIS/IAEA Library Federated Search System

The INIS Secretariat, in cooperation with the IAEA Library, has developed a cross-database search system using Convera technology. This exciting capability, implemented in late 2006, is now being tested internally. It enables users to search across several resources: the INIS dsatabase, the INIS full-text collection of non-conventional literature (NCL), IAEA Library Catalogues, the Waste Management Database, the Computer Programme Abstracts of the Nuclear Energy Agency (NEA) and nuclear journal articles from Elsevier.

The new search system provides access to high-quality literature from authoritative resources of particular interest to IAEA users, and is open for IAEA staff via LISNet (http://lisnet.iaea.org). Depending on results of user feedback, this capability will be further developed, and more information resources added to the search system.

Contact: Anatoli Tolstenkov; A.Tolstenkov@iaea.org

New Document Delivery Services in Member States

Armenia, Botswana, Georgia, Hungary, Romania and Serbia now offer document delivery services for full-text documents from the INIS collection of non-conventional 'grey' literature on nuclear science and technology. This brings the number of national INIS Centres, which provide this service, to 67. Any requests for individual reports produced since 1997 will be referred to the document delivery centres in these countries. Reports published prior to 1997 can be ordered from the INIS Secretariat (INIS.CBL@iaea.org). The Document Delivery Service for the Czech Republic is now located in the Library of the Nuclear Research Institute in Řež, Czech Republic.

Learn more about INIS Document Delivery Services on our website (http://www.iaea.org/inisnkm/inis/products/dd_srv.htm) including contact details, information on services, cost and types of delivery.

Contact: Taghrid Atieh; T.Atieh@iaea.org

INIS Cooperation with IAEA Water Resources Programme

The International Symposium on Advances in Isotope Hydrology and its Role in Sustainable Water Resources Management (IHS-2007), held at the IAEA on 21–25 May 2007, provided an opportunity to present the INIS database to the participants of this event. Each of the 226 participants from 59 countries received an INIS thematic CD with 1080 bibliographic references and 686 full-text documents from the INIS database on the topic of the conference. Jointly with the IAEA Library, the INIS Secretariat participated in the Symposium exhibition and gave demonstrations of the INIS database to interested conference participants.

Contact: Elisabeth Dyck; E.Dyck@iaea.org

Photo: E.Dyck, IAEA

Mr. K. Kulkarni, Scientific Secretary of the IHS-2007, visiting the INIS information stand; left: Ms. C. Krieger-Levine, INIS Subject Specialist

News from INIS Members

INIS User Manual in Japanese

The National INIS Centre of Japan has translated the User Manual for the INIS online database into the Japanese language. We are grateful to *Mr. Minoru Yonezawa* who provided the translation. The manual is available to users of the INIS online database in the "Help" pages.

INIS Database Supports University Programme in Slovakia

The National INIS Centre in the Slovak Republic hosted four one-day INIS training seminars, focusing on chemical information, for a group of students from the Department of Nuclear Chemistry at Comenius University, Bratislava, in spring 2007. As part of the university's bachelor curriculum in chemistry, these seminars have been organized regularly since 1995.

The seminars on chemical information covered all aspects of using the INIS database and INIS NCL collection on CD-ROM and on the Internet. Special emphasis was given to bibliographic and full-text searches in the area of nuclear chemistry, since students are obliged to undertake bibliographic searches in the INIS database for their Bachelor diploma thesis. Information material on INIS and free access to the online database for students and lecturers supported the seminars.

An article on the history of the National INIS Centre in Slovakia was recently published in an e-book entitled *Past and Present Trends in Nuclear Chemistry* (see p.18)

Dr. Jozef Kuruc and Dr. Silvia Dulanska, Lecturers
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Photos: J. Kuruc, Slovakia

INIS Training Seminar for students of Comenius University, Bratislava, March 2007; using the INIS database is part of the University's Bachelor programme in chemistry.

Cooperation among INIS Members in Training Activities

France: Upon request of the IAEA, the National INIS Centre in France at the Commissariat à l'Energie Atomique (CEA) has agreed to train a group of seven fellows from national INIS Centres in Burkina Faso and Niger in October 2007. **Ms. Christa Brulet, INIS Liaison Officer (ILO) for France**, will host the 10-day practical training which will focus on the role of a national INIS Centre, collection and selection of input to the INIS database and NCL collection, preparation of bibliographic descriptions and subject analysis, and submitting records and documents to the INIS Secretariat at the IAEA. The training will also include information retrieval from the INIS database on CD-ROM and on the Internet, promotion and outreach, document delivery services and an overview of other major IAEA information sources. The training will be conducted in French.

India: Under the supervision of **Indian ILO Mr. Vijai Kumar,** three fellows from Tanzania and Egypt received technical training on all aspects of INIS at the Bhabha Atomic Research Centre (BARC), which hosts the National INIS Centre.

Photo: BARC, India

Mr. Ebenzer Kimaro (centre left), the United Republic of Tanzania, was trained at the Indian INIS Centre at BARC; centre right: Mr. V. Kumar, ILO India

Mr. Ebenezer E. Kimaro, ILO for the United Republic of Tanzania, benefited from a comprehensive one-month training programme on the organization and management of a national INIS Centre. This training has positively contributed to establishing the INIS Centre in the United Republic of Tanzania.

Also, two staff members of the National Information and Documentation Centre of the Egyptian Atomic Energy Authority (EAEA), Mr. Ayman Fawzy Mansour Gabr and Ms. Amany Abdel Ghany, participated in a one-week INIS training programme in late 2006, which covered all topics related to input and usage of the INIS database and NCL collection on the Internet and CD-ROM. The train-

ing was organized by the IAEA within its activities to upgrade the National Information and Documentation Centre of EAEA (see p. 13)

Syrian Arab Republic: Two staff from the National INIS Centre in Uzbekistan, Mr. K. Yuldashev and Mr. A. Umarlaiev, were trained at **the Syrian INIS Centre** during one week in July 2007 in the area of nuclear information processing and setting up a website.

Syrian Arab Republic/United Republic of Tanzania: The **Alternate ILO for the Syrian Arab Republic, Mr. R. Raed Al-Hallack,** undertook an expert mission to the INIS centre in the United Republic of Tanzania in February 2007 to assist in establishing INIS related activities and provide expert assistance in library operations and automation.

Sweden/Kenya: In March 2007, the **Swedish INIS Liaison Officer, Mr. Lars Edvardson,** from the Royal Institute of Technology Library in Stockholm went on an expert mission to the Kenyan INIS Centre at the National Council for Science and Technology in Nairobi. He assisted in setting up the centre and training staff members in INIS input preparation and products utilization.

Recent Publications and Articles

***IAEA publications can be ordered and/or downloaded at* http://www.iaea.org/Publications/index.html**

ETDE/INIS Joint Thesaurus (Rev. 2) Part I (A-L) and Part II (M-Z)

IAEA-ETDE/INIS-1 (Rev.2) 2007, ISBN 92-0-102207-7, English. 120.00 Euro. Date of Issue: May 2007

The ETDE/INIS Joint Thesaurus contains the controlled terminology for indexing all information within the subject scope of INIS and the Energy Technology Data Exchange (ETDE). The terminology is used in subject descriptions for input to, or retrieval of, information in these systems. The Joint Thesaurus is the result of continued editing in parallel to the processing of the INIS and ETDE databases.

INIS: Multilingual Thesaurus

IAEA-INIS-26/CD, 0 figures; 2007, ISBN 92-0-102307-3, Arabic-Chinese–English–French–German–Russian–Spanish. 30.00 Euro. Date of Issue: May 2007

The INIS Multilingual Thesaurus, available on CD, is a tool to assist users of the INIS database in indexing, and searching for, literature in several languages. The Thesaurus also serves workers in the nuclear field who are not directly connected with INIS, as well as translators, interpreters, authors and others working in the areas of languages, semantics or terminological reference. The translations of the terminology from the English version (source language) into Arabic, Chinese, French, German, Russian and Spanish (target languages) were performed by specialists from the INIS centres of the Syrian Arab Republic, China, France, Germany, the Russian Federation and Spain, respectively.

Database INIS and INIS National Centre of the Slovak Republic. Past, Present and Future

Kuruc, J. (Department of Nuclear Chemistry, Faculty of Natural Sciences, Comenius University, Slovakia), *in* Mantel, L., Kuruc, J. (eds.) *Past and present trends of nuclear chemisty*, p: 239-265; ISBN-13: 978-80-969290-9-2, in Slovak language; an English translation can be ordered from info@omegainfo.sk;
INIS database Ref. Number: 38059372

The following journal articles are also available on www.iaea.org/inisnkm

Development of information resources package for the Chernobyl accident and its consequences by INIS

Negeri, B., Tolstenkov, A. and Rieder, S.; (INIS and Nuclear Knowledge Management Section, IAEA, inis@iaea.org) *in* ICSTI Journal: *Information & Innovation*, No.1, 2007, p. 27–33; in English and Russian

Knowledge Management for Nuclear Industry Operating Organizations

Durham, L. (Sterling Learning Services, Inc., USA), Kosilov, A., Mazour, T., and Yanev, Y. (Nuclear Energy Department, IAEA), in *Environmental Safety, No. 2, 2007*, p.42–46; in English and Russian

Yanko Yanev: We Support the Creation of National Knowledge Management Systems

in *Environmental Safety*, No. 2, 2007, p.72–75;
in English and Russian

Order a copy of the *Environmental Safety* journal at: foreign@radioecology.ru

БЕЗОПАСНОСТЬ ОКРУЖАЮЩЕЙ СРЕДЫ
ENVIRONMENTAL SAFETY

Forthcoming Meetings

Meeting Title	Date	Location	Country	Scientific Secretary
2007 School of Nuclear Knowledge Management	24–28 September 2007	ICTP, Trieste	Italy	Y. Yanev A. Kosilov
Research Coordination Meeting (RCM) on Comparative Analysis of Methods and Tools for Nuclear Knowledge Preservation	15–19 October 2007	IAEA, Vienna	Austria	M.L. Ruyssen
Training Meeting/Workshop on Managing Nuclear Knowledge	22–26 October 2007	Tokyo	Japan	Y. Yanev K. Hanamitsu
11th Joint ETDE/INIS Technical Committee Meeting	6–8 November 2007	IAEA, Vienna	Austria	A. Tolstenkov
Technical Meeting to Develop a Guidance Document on Knowledge Management for Nuclear R&D Organizations	19–23 November 2007	IAEA, Vienna	Austria	M.L. Ruyssen
Technical Meeting on the Role of Universities in Preserving and Managing Nuclear Knowledge	10–14 December 2007	IAEA, Vienna	Austria	Y. Yanev P. Gowin
Technical Meeting on The Implementation of Fast Reactor Data Retrieval and Knowledge Preservation Activities	11–14 December 2007	IAEA, Vienna	Austria	R. Anghelache A. Stanculescu
2008 School of Nuclear Knowledge Management	1–5 September 2008	ICTP, Trieste	Italy	Y.Yanev A. Kosilov

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International Conference on KM in Nuclear Facilities—Exhibition

In parallel to the Conference, an exhibition presented several external companies involved in knowledge management, including DNV Energy, Excel Services, Intergraph, Tessella Support Services, and Xinexus Nuclear AG. Their financial support to the Conference was much appreciated. The Japan Atomic Industrial Forum, the Korea Atomic Energy Research Institute and the World Nuclear University were also part of the exhibition, together with information stands on the knowledge management activities in the IAEA Departments of Nuclear Energy and Nuclear Safety and Security.

Organized by the INIS and NKM Section, the stand of the NE Department featured new displays, a selection of NE publications and information material, the NE audiovisual show, and demonstrations of the INIS database, the Nuclear Power Plant Simulators for Education and the new Nuclear Energy Knowledge Resources website.

Contact: Elisabeth Dyck; E.Dyck@iaea.org

Section Head Mr. Workman at the NE information stand in discussion with Canadian participants

Exhibition Lounge at the IAEA: the information stands attracted many visitors during coffee breaks

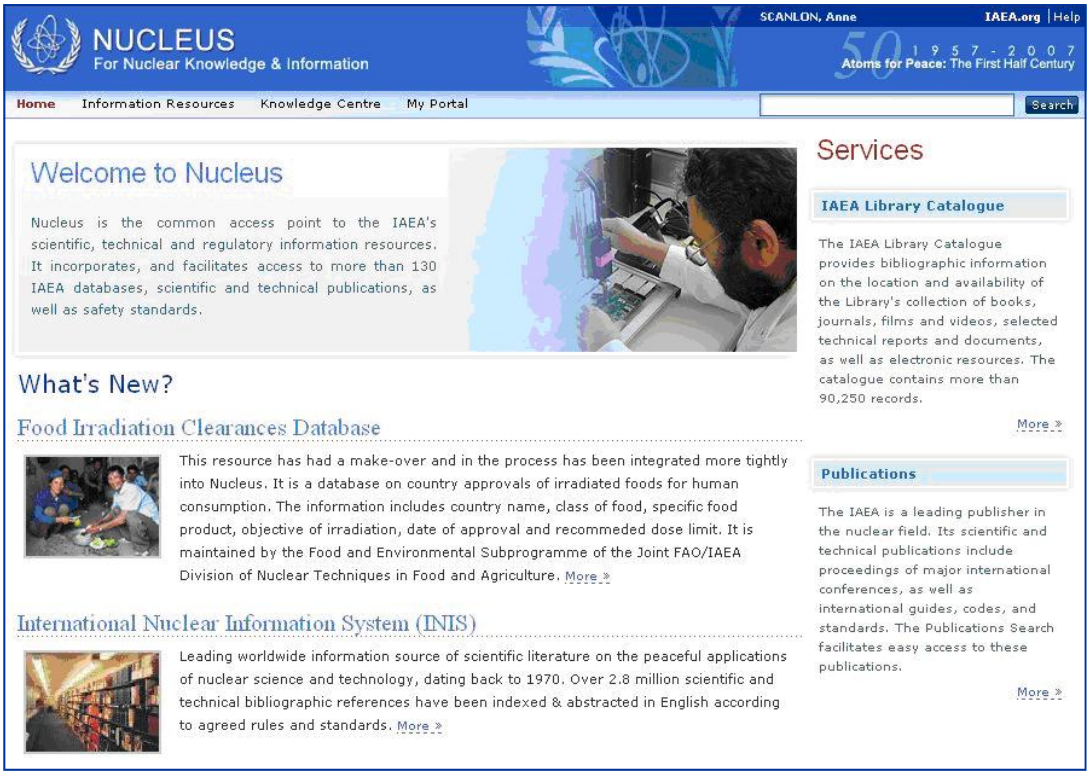
Demonstrating the INIS database on a large flat screen

Photos: IAEA

News from NUCLEUS

http://nucleus.iaea.org

By Anne Scanlon, Project Manager of NUCLEUS, IAEA Division of Information Technology



Nucleus is the one common access point to the IAEA's nuclear knowledge and information resources, including associated legal and official documentation. It includes scientific and technical documents, websites and databases. The primary aim is to facilitate users finding the information they are looking for easily and with a minimum of overhead.

Using the Nucleus catalogue, users can browse through a selection of more than 150 information resources produced by the IAEA, access these resources, search across the metadata, and create links using the personalization features. There is also a feature to search the IAEA library catalogue and the catalogue of IAEA publications.

The Nucleus catalogue covers a diverse range of subjects including applied life sciences, engineering, waste management, the nuclear fuel cycle and nuclear physics. The Power Reactor Information System (PRIS), the Technical Cooperation website, the Nuclear Energy Knowledge Resources and information on the INIS database are just some of the major IAEA information resources accessible via Nucleus. The project is currently in its third phase and will evolve based on user feedback and knowledge sharing needs.

Looking into the future: The long term vision is to make Nucleus part of a network (NucWeb) of similar nuclear portals in other international and national organizations and institutions. By sharing catalogue and indexing information through well-defined standards, such a network would provide knowledge workers in the nuclear field with easy access to nuclear knowledge and nuclear information resources on the web, including those restricted and publicly available.

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