IAEA
International Atomic Energy Agency

International Conference on Nuclear Knowledge Management and Human Resources Development:

Challenges and Opportunities

Moscow, Russian Federation
15 to 19 June 2020

Organized by the

International Atomic Energy Agency (IAEA)

Hosted by the

Government of the Russian Federation

through the

State Atomic Energy Corporation "Rosatom"

Announcement and Call for Papers

A.   Background

The nuclear field faces human resource challenges across the board, including in Member States operating nuclear power plants and countries in phases 2 and 3 of the Milestones approach, as well as at nuclear facilities, including research reactors, and radioactive waste management and fuel cycle facilities, subject to long term operation or decommissioning. Many of the opportunities for improving human resource development capabilities and ensuring the movement of knowledge and skills throughout the nuclear lifecycles are similar for all these facilities.

The best practices and practical guidance used at organizational and national levels can be shared to support sustainable human resource policies, nuclear knowledge management and information management activities across the workforce lifecycle. International cooperation approaches through conferences can be initiated or strengthened to address workforce related knowledge management issues at regional and international levels.

The programmatic activities of the IAEA encompass a dedicated subprogramme on nuclear knowledge management which focuses on:

—— Developing methodologies and guidance documents for planning, designing and implementing nuclear knowledge management programmes;
—— Facilitating nuclear education, networking and experience exchange;
—— assisting Member States by providing products and services for maintaining and preserving nuclear knowledge; and
—— Promoting the use of state-of-the-art knowledge management technologies and supporting interested Member States in their use.

The first international conference on nuclear knowledge management (NKM) was held in 2004 in Saclay, France; the second and third such conferences were held in Vienna in 2007 and 2016.

NKM-related topics, including capacity building, human resource development (HRD), education and training, and knowledge management were also addressed at a number of other conferences, including the first international conference on HRD held in Abu Dhabi in 2010, and the second and third such conferences held in Vienna in 2014 and in Gyeongju, Republic of Korea, in 2018.

This conference will review the current state of nuclear HRD, including nuclear learning and development and knowledge management activities, and will address issues such as availability and opportunities for sharing of relevant infrastructure. The conference will also directly support the ongoing business plans being delivered for Member States associated with HRD, learning and development, NKM and information management activities to support capacity building. The integrated approach to HRD and NKM will enable the specific topics and activities of the conference to be better tailored to meet the requirements of Member States who no longer view NKM and HRD as separate entities.

B.   Objective of the Conference

The objective of the conference is to review global developments in HRD, NKM and human capacity building, consider the current and future challenges and opportunities, and to provide participants with practical solutions that they can use at organizational, national and international levels to develop and maintain the human resources needed to support safe, secure and sustainable nuclear power

programmes. Various issues related to specific human competencies, methodological or process knowledge, and technology-related knowledge management will also be addressed.

C. Programme Structure and Topics

To facilitate the conference objectives, each topical session will have the following format:

— A keynote speaker, who will present a paper by invitation;
— A set of presentations that supplement specific areas within the session topic and stimulate discussion among conference participants; and
— A set of detailed technical papers that present the state of the art of the subject area.

Opening Session: Opening, plenary and keynote presentations

Opening addresses will be made by a senior management representative of the IAEA, a representative of the Government of the Russian Federation and the Chairperson of the Conference, who will be a senior manager from the host organization. The session will set the conference objectives and provide background information on the status and trends in the field of NKM and HRD including challenges to ensure the future nuclear workforce capability. Keynote interventions will provide information about cross-cutting aspects in NKM and HRD and specific applications of nuclear technologies that will emphasize the increasing reliance on a systematic and more effective approach to enhance the safe and economical operation of nuclear facilities.

Session 1: Nuclear Knowledge Management

An integrated approach to NKM increases the importance and understanding of the workforce challenges across the full human resource lifecycle in the nuclear field, from embarking countries developing new nuclear programmes to existing facilities moving to decommissioning activities. Topics to be addressed in the presentations are:

— Strategies and policies to support NKM;
— Knowledge management methodologies and implementation approaches;
— Knowledge management across the nuclear operating lifecycle;
— Knowledge management for nuclear regulatory organizations;
— Knowledge management for non-power nuclear science and applications;
— Knowledge management in nuclear technology research, development and innovation;
— Internal/external collaboration for knowledge management; and
— Organizational culture to support knowledge management.

Session 2: Learning and Development for Human Resources

There is a great need for robust strategies, sustainable programmes and shared materials for the improvement of the entire education/training process in the field of learning and development for human resources, and for the preservation of knowledge and expertise management. Topics to be addressed in the presentations are:

— Nuclear education and outreach;
— Building a learning culture in nuclear organizations and regulators;
— Human resources planning to support building and maintaining a workforce;
— Competency mapping and management;

— Training, certification and continued professional development along with performance monitoring and improvement;
— Roles and responsibilities related to human resources and leadership functions within the nuclear organization and regulators; and
— Networking and technical communities of practice.

Session 3: Digital Transformation to Support NKM and HRD

The aim of this session is to share technical updates on experiences and lessons learned in relation to information technology and digital applications to support NKM and HRD on the following topics:

— Simulators for education and training of a nuclear workforce;
— Plant information models;
— Understanding how to plan and improve the digitalization strategy;
— Smart digital tools to enhance existing training programmes or support the establishment of new training programmes; and
— Potential digital technology to transform industry and businesses.

Session 4: Nuclear Information Management

Due to emerging and disruptive information technologies and changing business needs, nuclear information management is undergoing substantial changes. Immediate access to reliable, trustworthy, easy to use and easily implementable, up-to-date information is required. In order to achieve this, proper information security and governance, top-of-the-line hardware and modern software, as well as properly trained staff need to be put in place. On the national and international level, a culture of long term preservation and information sharing need to be promoted. Topics to be addressed in the presentations are:

— Strengthening the role of nuclear knowledge and information management;
— Knowledge organization systems;
— Technology to support new trends in information, records and data management;
— Managing big data for analytics and transformation;
— Exploring data and disruption for nuclear plant operators; and
— Predictive analytics and new opportunities.

Panel Discussions

To discuss technical challenges and experiences, panel discussions will be organized for technical sessions 1 to 12 in parallel. The panellists and audiences will have a chance to exchange their hands-on experiences and lessons learned on knowledge management challenges and approaches. A closing panel discussion by high level technical experts will consider:

— Technological issues;
— Regulatory issues;
— Political issues;
— Human resources; and
— Public information.

Closing session

To conclude the conference, the session chairs will summarize the presentations and discussion of each technical session and the Chairperson will present their conclusions and recommendations to the IAEA.

D.   Target Audience

The conference is directed mainly at the staff of utilities, research and design organizations, regulatory bodies, and manufacturing and service companies, as well as government decision makers concerned with near, medium and long term nuclear energy needs, including:

— Government officials responsible for the introduction or expansion of nuclear power programmes;
— Managers, human resource managers and specialists, and training managers and specialists from the organizations that operate, regulate or support nuclear power plants and other nuclear facilities;
— Administrators, department chairs and faculty of universities, polytechnic institutes and training centres;
— Education and training specialists, knowledge management specialists and trainers from supplier organizations to the nuclear industry;
— Representatives of technical support organizations, vendors and supplier trade organizations that support the nuclear industry;
— Leaders of national and international organizations that establish policies and programmes in areas related to HRD of importance to the nuclear industry;
— Managers and specialists of organizations that communicate with nuclear industry stakeholders, particularly potential future employees in the nuclear industry; and
— Representatives of the next generation of nuclear professionals.

E. Synopses, Papers and Proceedings

Concise papers on issues falling within the topics outlined in Section C may be submitted as contributions to the conference. All papers, apart from invited papers, must present original work and they should not have been published elsewhere.

(a)   Submission of Extended Synopses

Anyone wishing to present a paper or poster during this conference must submit a two-page synopsis in electronic format (no paper copies), directly to the IAEA. Instructions on how to upload the synopsis to the conference's web browser-based file submission system (IAEA INDICO) will be available on the IAEA conference website (see Section O). The synopses must be submitted through this system between **1 October 2019 and 15 December 2019**. No other form of submission will be accepted.

Authors must further submit the following two forms to their appropriate governmental or other competent authority (see Section G) for transmission to the IAEA:

— Participation Form (Form A)
— Form for Submission of a Paper (Form B)

These forms must be received by the IAEA no later than **15 December 2019**.

IMPORTANT: The electronically received two-page synopsis will be considered by the Programme Committee only if these two forms have been received by the IAEA through the established official channels.

(b)   **Acceptance of Papers/Posters**

Authors will be informed by **28 February 2020** as to whether their papers have been accepted by the Programme Committee for oral or poster presentation.

Furthermore, selected authors will be asked to prepare full papers for publication in the proceedings. Guidelines for the preparation of contributed papers will be provided at that time.

In order to provide ample time for discussion, the number of papers that can be accepted for oral presentation is limited. If the number of relevant and high-quality papers submitted for selection exceeds the acceptable number, some of them will be selected for poster presentation.

The Conference Secretariat reserves the right to exclude papers that do not comply with the IAEA's quality standards and/or do not apply to one of the topics listed in Section C.

(c)   **Proceedings**

The proceedings of the conference containing conference conclusions and recommendations, session summaries, and the full papers will be published by the IAEA as soon as possible after the conference.

F.   Participation and Registration

All persons wishing to participate in the conference must be designated by an IAEA Member State or should be members of organizations that have been invited to attend. The list of invited organizations can be requested from the Conference Secretariat (see Section O).

In order to be designated by an IAEA Member State, participants are requested to send the following form(s), as applicable, to their competent national authority (e.g. Ministry of Foreign Affairs, Permanent Mission to the IAEA or National Atomic Energy Authority):

- Participation Form (Form A): participation only; no deadline if only Form A is submitted.

- Form for Submission of a Paper (Form B): participants submitting a paper through INDICO must send the completed and signed Form B together with Form A to their competent national authority for onward transmission to the IAEA (Official.Mail@iaea.org) by **15 December 2019**.

- Grant Application Form (Form C): participants requesting financial support from the IAEA must complete Form C and send it together with Form A (and Form B, if applicable) to the competent national authority for onward transmission to the IAEA (Official.Mail@iaea.org) by **15 December 2019**. Form C must be stamped and signed by the competent national authority.

Participants who are members of an organization invited to attend are requested to send the above form(s) through their organization to the IAEA (Official.Mail@iaea.org).

G.   Expenditures and Grants

No registration fee is charged to participants.

The IAEA is generally not in a position to bear the travel and other costs of participants in the conference. The IAEA has, however, limited funds at its disposal to help cover the cost of attendance of certain participants. Upon specific request, such assistance may be offered to normally one participant per country, provided that, in the IAEA's view, the participant will make an important contribution to the conference.

If Governments wish to apply for a grant on behalf of one of their participants, the Participation Form (Form A) and the Grant Application Form (Form C), stamped and signed by the Government, must reach the IAEA (Official.Mail@iaea.org) by **15 December 2019**.

Applications that do not comply with the above conditions cannot be considered.

Approved grants will be issued in the form of a lump sum payment that usually **covers only part of the cost of attendance**.

H.   Distribution of Documents

A preliminary programme of the conference will be available on the conference web page before the conference. The final programme and all accepted synopses will be available upon on-site registration at the conference.

I.   Working Language

The working language of the conference will be English. All communications must be sent to the IAEA in English.

J.   Venue and Accommodation

Detailed information on the venue, accommodation and other relevant matters will be sent directly to all designated participants approximately three months before the conference. This information will also be made available on the conference web page as soon as possible.

K. Exhibition

A limited amount of space will be available for commercial vendors' displays/exhibits during the conference. Further information will be posted in due course on the conference web page (see Section O).

L. Visa

Designated participants who require a visa to enter the Russian Federation should submit the necessary application(s) to the nearest diplomatic or consular representative of the Russian Federation as early as possible, but at least one month before the start of the conference. An invitation letter from the local organizers will be required to accompany the visa application. Please see the "Visa Guidance" section to be made available soon on the conference web page (see Section O) for information on how to obtain such an invitation letter.

M. Key Deadlines

Submission of Form B and extended synopsis (800 words)	**15 December 2019**
Submission of Grant Application Form (Form C):	**15 December 2019**
Notification of acceptance of papers/posters:	**28 February 2020**
Submission of full papers:	**30 April 2020**

N. Conference Secretariat

General contact details of the Conference Secretariat:

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O.   Conference web page

Please visit the IAEA conference web page regularly for new information regarding this conference:

https://www.iaea.org/events/nkmhrd-2020