

Capacity Building and Nuclear Knowledge for Sustainable Energy Development

Objective

To support Member States in strengthening their capacities to elaborate robust energy strategies, plans and programmes, and to improve the understanding of nuclear technology's contribution in achieving the SDGs. To support Member States in strengthening their capacities to establish, manage and utilize their nuclear knowledge base by disseminating knowledge management methodologies, guidance and tools. To acquire, preserve and provide information in the area of nuclear science and technology to facilitate sustainable information sharing among Member States.

Energy Modelling, Databanks and Capacity Building

In 2018, the Agency conducted 34 capacity building events, providing training in energy planning to over 300 professionals from over 60 Member States in Africa, Eastern Europe and Latin America and the Caribbean. The Agency updated and enhanced its energy planning tools — now in use by 150 Member States and 21 international organizations — as well as the related multilingual training materials, including e-learning packages.

At the United Nations Global SDG 7 Conference, held in Bangkok in February, the Agency hosted an exhibition to present its energy planning activities, including its tools for developing comprehensive supply and demand analysis and assessing energy policies for the achievement of the Sustainable Development Goals (SDGs). At the United Nations High-level Political Forum on Sustainable Development, held in New York in July, the Agency supported the training session on SDG 7, addressing affordable and clean energy, and presented key elements of its capacity building framework for energy planning.

The Agency updated its annual publication *Energy, Electricity and Nuclear Power Estimates for the Period up to 2050* (Reference Data Series No. 1), which incorporates recent market and policy developments and provides detailed descriptions of the current situation and projections for the future.

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Energy–Economy–Environment (3E) Analysis

At the 24th session of the Conference of the Parties to the United Nations Framework Convention on Climate Change (COP24), held in Katowice, Poland, in December, the Agency served as the focal point for the United Nations exhibit showcasing low carbon energy pathways supporting the SDGs and nationally determined contributions. It also led the joint United Nations side event on SDG 7 (Fig. 1), focused on clean and affordable energy and solutions for cities, particularly megacities. The event covered supply options such as small and medium sized or modular reactors, and demand requirements such as efficiency, electro-mobility, modernized industrial zones and e-commerce. The Agency's side event at



FIG. 1. The Agency led the joint United Nations side event entitled ‘Clean and Affordable Energy for Sustainable Urbanization and Development’ at COP24 in December.

the SDG Pavilion highlighted the role of capacity building in informing decision makers on the transition to a low carbon future. To increase outreach, the Agency participated in side events organized within the international initiatives ‘Nuclear for Climate’ and ‘Nuclear Innovation: Clean Energy Future’ to stress the role of nuclear science and technology in combatting climate change and contributing to sustainable development, and to present the Agency’s support for Member States in energy planning.

Ahead of COP24, the Agency produced a report entitled *Climate Change and Nuclear Power 2018* and a new brochure entitled *Financing Nuclear Power in Evolving Electricity Markets*. The new materials augment the Agency’s ongoing support to Member States in the implementation of the Paris Agreement on climate change.

At the Ninth International Forum on Energy for Sustainable Development, held in Kyiv in November, the Agency cooperated with the United Nations Economic Commission for Europe to organize the session on nuclear energy for sustainable development. One of the conclusions of the Forum was that all energy sources – including renewables, nuclear energy and high efficiency fossil fuel with carbon capture and storage – must be considered, along with new business models and significant improvements in energy efficiency and productivity, to ensure that the energy needed for sustainable development is available and affordable.

In November, the Agency brought together 23 experts from 14 Member States and 4 United Nations agencies and non-governmental organizations at a technical meeting to showcase and exchange experience on the Agency’s climate, land, energy and water framework for developing integrated energy and sustainable development strategies.

Throughout 2018, the Agency continued several initiatives to address Member States’ needs in terms of approaches to cost estimation and the assessment of economic effects of nuclear power projects. In April, the Agency convened a Technical Meeting on Nuclear Power Cost Estimation and Analysis Methodologies, with 45 experts from 20 Member States, as part of a series of meetings within the nuclear cost basis project initiated in 2017. In June, training was provided to 20 experts from the Philippines on the newly developed Extended Input Output Model for Nuclear Power Plant Impact Assessment (EMPOWER) modelling tool for estimating economy-wide, sectoral and employment effects of national nuclear power programmes.

Nuclear Knowledge Management

In 2018, five Nuclear Energy Management (NEM) Schools, held in Italy, Japan, the Russian Federation and South Africa, attracted 128 participants. This included the first Russia-IAEA Nuclear Energy Management School for Managers in Nuclear Organizations, which focused on supporting middle level managers and decision makers in the nuclear sector in enhancing managerial and technical competencies essential for establishing or expanding national nuclear energy programmes. Two Nuclear Knowledge Management (NKM) Schools were also held, attended by 71 participants from 30 Member States. To date, a total of 887 NEM School participants and 698 NKM School participants from around 80 Member States have benefited from these programmes.

The Agency's Cyber Learning Platform for Network Education and Training (CLP4NET) hosted more than 640 on-line courses in 2018, including the courses for prequalification for the NEM and NKM Schools.

The Agency carried out Knowledge Management Assist Visits (KMAVs) to the Emirates Nuclear Energy Corporation in the United Arab Emirates in February, to the National Nuclear Energy Agency of Indonesia in June, and to the Nuclear Energy Commission of Mongolia and the National University of Mongolia in December. The objective of the visits was to review the nuclear knowledge management programmes of these institutions and to provide expert advice on how to improve them.

Through its Education Capability Assessment and Planning framework, the Agency provided support to Nigeria in efforts to establish sustainable nuclear education and training programmes. It also implemented initial KMAVs to the National Polytechnic University of Armenia and the Harbin Engineering University in China to assess the feasibility of implementing master's programmes in nuclear technology management at these universities within the Agency's International Nuclear Management Academy framework.

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Collection and Dissemination of Nuclear Information

At the end of 2018, the membership of the International Nuclear Information System (INIS) comprised 131 Member States and 24 international organizations. INIS reached 4.2 million records, including almost 570 000 full texts that are not available through commercial channels. The Agency added 108 196 bibliographic records and over 19 000 full texts to the INIS repository, which had over 3.2 million page views during the year. The INIS Multilingual Thesaurus continued to serve the international community in eight languages.

The 39th Consultative Meeting of INIS Liaison Officers, held in Vienna in October, was attended by 66 participants from 61 Member States and 2 international organizations. The event featured an INIS forum entitled ‘The Changing World of Information’, where invited speakers discussed topics such as the role of information systems and services in achieving the SDGs.

The IAEA Library continued to ensure that information resources and services remained current, cost effective and easily accessible. In 2018, the number of electronic journals available through the Library increased to over 58 300, more than 8000 people visited the Library, over 1900 items were checked out and over 1800 interlibrary loans were enabled. The Agency created over 1100 personalized Library user profiles, in response to continued requests for tailored packaging of nuclear information products and services. It also offered 15 training sessions on general aspects of the Library, attended by 220 participants.