

Capacity Building and Nuclear Knowledge for Sustainable Energy Development

Objective

To strengthen Member State capacities in energy and nuclear power planning to elaborate sustainable energy strategies and conduct studies for energy system and electricity supply options, energy investment planning, and energy environment policy formulation. To build Member State capacities to manage nuclear knowledge and provide knowledge management services and assistance. To procure and provide printed and electronic information in the area of nuclear science and technology to the IAEA Secretariat and Member States.

Energy Modelling, Databanks and Capacity Building

Through national and regional technical cooperation projects, the Agency conducted 45 capacity building events on energy planning in Africa, Eastern Europe and Latin America and the Caribbean in 2017. Over 690 professionals from 70 Member States were trained through distance training and face-to-face training events. The Agency and the United Nations Economic Commission for Africa joined efforts to help build capacity in energy planning in African countries.

In response to Member State requests, the Agency expanded and improved its annual publication *Energy, Electricity and Nuclear Power Estimates for the Period up to 2050* (Reference Data Series No. 1). The 2017 edition contains more detailed descriptions of the current situation and the projections for the future.

Energy–Economy–Environment (3E) Analysis

At the 23rd session of the Conference of the Parties to the United Nations Framework Convention on Climate Change (COP23) held in Bonn, Germany, in November, the Agency was selected as the focal point for the United Nations exhibit on energy, industry, innovation and infrastructure. It also led the United Nations energy side event, in cooperation with several United Nations agencies, focused on the organizations' efforts to build their member countries' capacity to evaluate resource systems in an integrated way. The aim is to improve understanding of the trade-offs in energy, land and water use, and their impact on the climate, to enable States to make informed policies and decisions. To increase outreach, the Agency teamed up with the International Emissions Trading Association and organized two more side events highlighting the contributions of nuclear power to climate change mitigation and the role of innovation in nuclear power technologies.

Ahead of COP23, the Agency produced three new brochures highlighting the role of nuclear science and technology in climate mitigation, adaptation and monitoring: *The IAEA and Climate Change*; *Nuclear Power for Sustainable Development*; and *Nuclear Power and Market*

Mechanisms under the Paris Agreement. It continued to monitor and support the work of the Intergovernmental Panel on Climate Change (IPCC), participating in the Expert Review of the First Order Draft of the IPCC Special Report on Global Warming of 1.5°C.

As part of an ongoing coordinated research project aimed at assessing the national and regional economic effects of nuclear programmes, the Agency released EMPOWER, a software tool enabling countries to evaluate their specific macroeconomic conditions for establishing a national position. The tool will be used as part of a new macroeconomic modelling and capacity building service for Member States.

During 2017, in collaboration with the United Nations Department of Economic and Social Affairs and the United Nations Development Programme, the Agency provided project scoping and training on tools for integrated assessment of CLEW (climate, land, energy and water) in the Plurinational State of Bolivia, Ghana, Nicaragua and Uganda.

Nuclear Knowledge Management

During the year, the number of courses hosted on the Agency's Cyber Learning Platform for Network Education and Training (CLP4NET) e-learning platform surpassed 580, with around 21 300 registered users by the end of 2017.

The Agency's International Nuclear Management Academy (INMA) programme continued to generate global interest. Four universities – Texas A&M University in the United States of America, the University of Tokyo in Japan, and North-West University and the University of the Witwatersrand in South Africa – hosted INMA peer review assessment missions, aimed at evaluating the compliance of their nuclear technology management programmes with INMA requirements. Five more universities are in the process of setting up degree programmes that would meet the competency requirements of INMA, aimed at increasing the availability of master's level courses for managers in the nuclear sector.

In 2017, the Agency carried out five Knowledge Management Assist Visits: to the joint stock company Atomstroyexport in the Russian Federation in March; to the Ignalina nuclear power plant in Lithuania in April; to the Daya Bay nuclear power plant in China in May; to the joint stock company ČEZ and the Temelín nuclear power plant in the Czech Republic in May–June; and to the joint stock company Slovenské elektrárne and the Mochovce nuclear power plant in Slovakia in October. The visits focused on reviewing and supporting the knowledge management programmes of these institutions, ranging from design and operation to decommissioning aspects.

The Agency's Nuclear Energy Management Schools and Nuclear Knowledge Management Schools continued to attract future managers. Four Nuclear Energy Management Schools – held in Japan, the Russian Federation, the United Arab Emirates and the International Centre for Theoretical Physics in Italy – were attended by 145 students from 31 Member States. The Nuclear Knowledge Management School at the International Centre for Theoretical Physics was attended by 60 students from 25 Member States. During the year, the Agency reached agreement with all regional host organizations aimed at streamlining, documenting, coordinating and systemizing the implementation of Nuclear Energy Management Schools.

Collection and Dissemination of Nuclear Information

The membership of the International Nuclear Information System (INIS) increased in 2017 to 131 Member States and 24 international organizations. INIS reached 4.1 million records, including over half a million full texts that are not readily available through commercial channels. The Agency added 103 879 bibliographic records and over 8000 full

texts to the INIS repository, which had over 2.9 million page views during the year. The INIS Multilingual Thesaurus continued to serve the international community in eight languages. The Agency replaced commercial search software with open source software, resulting in savings.

Participants from 22 Member States attended an INIS training seminar held in October in Vienna. The seminar was aimed at building capacity and improving many aspects of the operational capabilities of national INIS centres.

The IAEA Library continued to ensure that information resources and services remained current, cost effective and easily accessible: the number of electronic journals available through the Library increased to over 53 300; more than 10 000 people visited the Library; over 1800 items were checked out; and over 1700 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. With the migration to a new integrated library management system, which includes a 'discovery service', it is now possible to search across all the resources.

Through the IAEA Library, the Agency coordinated the International Nuclear Library Network — comprising 58 libraries and research institutes from 39 Member States — by facilitating the sharing of knowledge, resources and best practices.

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