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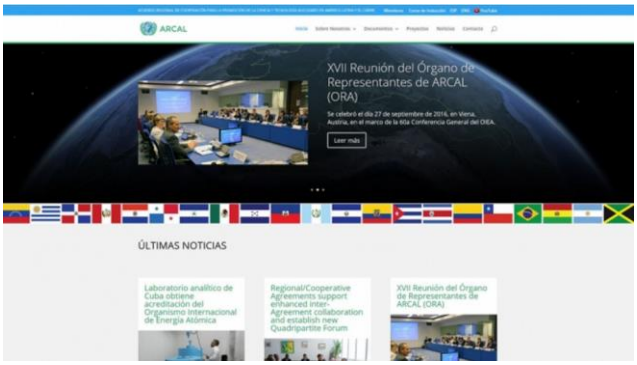
NEW YEAR, FRESH LOOK: ARCAL LAUNCHES A NEW WEBSITE

新年新樣貌：ARCAL 啟動新網站



The Regional Cooperation Agreement for the Promotion of Nuclear Science and Technology in Latin America and the Caribbean (ARCAL) and its Member States have launched a new website recently, where visitors can learn more about the Regional Cooperation Agreement and its activities.

報告摘要(KEY INFORMATION)

1. 在拉丁美洲和加勒比(Caribbean)地區的區域核子科學與技術合作協定的成員國最近啟動了一個新網站，新網站方便訪問者與使用者可以更多地了解「區域合作協定」及其活動。
2. 哈薩克核物理研究所近期對其研究型反應器的安全性進行了重大修改和升級，其中包括對反應器安全系統的改進以及工作人員的培訓和資格認證計畫。
3. 2017 年 2 月，來自歐洲和日本實驗室的 34 名與會者出席了國際原子能總署在奧地利維也納總部舉辦的數據評估研討會，進行目標導向能力測試及幫助歐洲成員國測量低放射性鈽在淡水中的活動能力。
4. 奧地利動物健康實驗室與獸醫實驗室合作，展開了多種新型病原體檢測，使成員國的科學家能夠以更短的時間和較少的成本更有效地診斷高度傳染性的反芻動物疾病。
5. 日本更新了 2011 年東京電力公司福島第一核電站事故影響地區的持續環境保護活動情況。日本當局向國際原子能總署通報從環保機構所取得的進展情況，以便與國際社會分享災後修復信息。
6. 核能署與比利時、德國，意大利、美國以及國際原子能總署等專家團隊在 2017 年 2 月 21 日至 22 日的會議中討論並列出了一套標準方法和一份不同國家放射性物料和燃料清單的比較表格。
7. 核能署(NEA)在法國巴黎組織了一個研討會，探討了放射性廢棄物之地質處置安全的監管審查和相關議題。

The website is hosted by the Argentinian Atomic Energy Commission, the institution responsible for coordination of ARCAL at the national level. The new site is user-friendly and appealing, with many helpful features and a style which reflects the ARCAL corporate image.

The main page contains a news carousel that provides updated information on ongoing IAEA technical cooperation projects and activities, and general information about the Agreement. Other functions include a search engine and a platform for members, which will be activated in the near future. The website is now also suitable for mobile users.

The projects proposed by ARCAL and implemented under the IAEA's technical cooperation programme can be found organized by thematic area. Information is provided on the expected outcome of each project, together with details of the counterpart, and a technical summary.

Documentation relevant to ARCAL have been grouped by topic: reports, meetings, institutional, and a specific section related to ARCAL´s communication strategies and structure.

In the future the website will also be available in English, with a special section for the press.

The new ARCAL website can be visited at: www.arcal-lac.org

Background

ARCAL is an Agreement between most IAEA Member States in the Latin America and the Caribbean region for technical and economic cooperation to promote the use of nuclear techniques for peace and development. The ARCAL Agreement provides a framework for Member State collaboration with the support of the IAEA and other international sources of cooperation. The Agreement addresses key development priorities in the region, focusing on pressing needs related to food security, human health, environment, energy, radiation technology and radiological safety.

ARCAL was established in 1984, and was made a formal inter-governmental agreement in 1998.

MAJOR SAFETY IMPROVEMENTS AT KAZAKHSTAN'S RESEARCH REACTOR: IAEA REVIEW

哈薩克大幅改進其研究型反應器的安全性：國際原子能總署審查

Kazakhstan's Institute of Nuclear Physics has implemented significant modifications and upgrades to improve the safety of its research reactor, concluded experts of an IAEA Integrated Nuclear Safety Assessment of Research Reactors (INSARR) mission last week. The IAEA team reviewed the comprehensive safety programmes at the light water reactor called WWR-K, including improvements to reactor safety systems and to the training and qualification programme for staff.

"The research reactor is now starting a new life after major modifications and refurbishment including conversion from the use of high-enriched uranium (HEU) to low-enriched uranium (LEU) to further serve science and the national economy," said Yergazy Kenzhin, General Director of Kazakhstan's Institute of Nuclear Physics. The recommendations provided by the IAEA review mission will help to ensure further continuous safety improvements, he added.

The reactor is located at Alatau, near the commercial capital of Almaty. The 6 MW reactor is used for the production of medical and industrial radioisotopes, scientific research and testing nuclear materials for industrial use.

The reactor was commissioned in 1967, when HEU fuel was typically used to conduct scientific experiments. In order to decrease proliferation risks while doubling the reactor's utilization capacity, the programme to convert WWR-K to LEU commenced in 2008 with the repatriation of spent HEU fuel. The WWR-K was shut down in 2015 to implement a number of modifications at the reactor to allow for the conversion, which was completed in 2016.

"The IAEA peer review team noted the implementation of recommendations of the previous INSARR mission in 2008, including those related to management system, training and qualification of personnel, and radiation protection," said Team Leader David Sears. He added that additional recommendations on safety analysis, ageing management, safety of experiments and emergency preparedness were provided during this mission.

The mission conducted at the WWR-K research reactor took place from 27 February to 3 March 2017. The mission team was composed of international nuclear safety experts from three countries that operate research reactors and IAEA staff.

INSARR is a peer review mission to assess and evaluate safety of research reactors and is conducted on the basis of the IAEA Safety Standards. Research reactors are nuclear installations used for research, education and training, testing materials or the production of radioisotopes for medicine and industry.

ENSURING SAFE DRINKING WATER WORLDWIDE AND STUDYING THE ENVIRONMENTAL BEHAVIOUR OF RADIO-CAESIUM

確保全球飲用水安全和研究銫的環境行為

In February 2017, the IAEA hosted a three day data evaluation workshop[1] in follow up to an earlier goal oriented proficiency test at its headquarters in Vienna, Austria, helping to build capacities in Member States from the Europe region in measuring low-activity radio-caesium[2] in freshwater. The workshop was attended by 34 participants from European and Japanese laboratories with experience in the radiochemical enrichment of caesium and the measurement of low activity by gamma-ray spectrometry.

The workshop aimed to build capacity in the detection of radio-caesium isotopes 134 and 137(Cs). These isotopes are present in small amounts in the environment, as a result of human activities. As these isotopes can have an adverse effect on human health, it is important to be able to detect above average radio-caesium levels in freshwater to ensure safe drinking water. The volume of radio-caesium transfer by freshwater is necessary to understand the behaviour of these isotopes, especially when it comes to the remediation of contaminated agricultural areas following nuclear emergencies. The information gathered and analysed through the proficiency test and the workshop helps to optimise hypothetical remediation work and facilitates safe agricultural production.

Participants took part in a proficiency test[3] on the determination of Cs-134 and Cs-137 isotopes in river samples from Japan and the Danube in Austria before the data evaluation workshop. This opportunity was highly appreciated by the participants, as they were then able to discuss the test results.

In general, the concentration of radio-caesium in freshwater is at a very low level – posing no risk to humans. To measure present concentrations of radio-caesium, laboratories use a special enrichment method. The workshop also enabled participants to exchange their experiences on the chemical enrichment of radio-caesium, and to identify the most appropriate radio-caesium enrichment technique as a recommended method.

Japan supported the exercise by conducting the sampling campaign and shipping the large volume water sample free of charge to the IAEA, as well as by supporting the participation of international experts. The workshop was developed and carried out in close cooperation with the following Japanese institutions: the University of Tsukuba, the Center for Research

in Isotopes and Environmental Dynamics; the National Institute of Advanced Industrial Science and Technology (AIST); the Tohoku Agricultural Research Center, NARO; the National Institute for Environmental Studies; and the Consortium for Monitoring of Radio-Cs in Water. The technical support for the proficiency test was provided by the NAEL Terrestrial Environment Laboratory of IAEA.

DIFFERENTIATING TRANSBOUNDARY ANIMAL DISEASES IN A SINGLE TEST

在單次測試區分出跨界傳染動物疾病

Peste des petits ruminants (PPR) is a highly contagious disease of small ruminants, which endangers the lives of sheep and goats in more than 70 Asian and African countries, as well as the livelihoods of their owners. PPR spreads very quickly from animal to animal, through direct contact, movement of infected animals or contaminated material. Early detection and confirmation of the disease is essential for its effective control and eradication.

Following the successful global eradication of rinderpest in 2011, the eradication of PPR by 2030 has been set as a goal by the Food and Agriculture Organization of the United Nations (FAO) and the World Organization for Animal Health (OIE). The IAEA, in partnership with the FAO through the Joint FAO/IAEA Division of Nuclear Techniques in Food and Agriculture, has developed a multi-pathogen assay at its Animal Production and Health Laboratory in Seibersdorf, Austria, that was validated in collaboration with veterinary laboratories from the VETLAB Network. The assay simultaneously detects the PPR virus and other pathogens causing similar signs of disease. Thanks to this innovative method, Member State scientists are now able to diagnose diseases more efficiently, both in terms of time and costs.

Specifically, the multi-pathogen assay focuses on microorganisms that cause respiratory diseases of small ruminants, such as PPR, capripox disease, pasteurellosis and contagious caprine pleuropneumonia. This new diagnostic assay enables scientists to detect and differentiate the pathogens responsible for the four diseases in one single rapid test. In fact, these diseases have the same outward symptoms in small ruminants, including fever and discharge from the eyes and nose, making it difficult to distinguish between them clinically. “If diagnosticians only test for the most common respiratory diseases in their area, they might miss when PPR or other diseases enter their area,” said Charles Euloge Lamien, a

scientist at the Animal Production and Health Laboratory.

The assay was transferred to Member State scientists during a recent two-weeks training course held at the Seibersdorf laboratories. The participants were from Asian and African laboratories of the VETLAB Network, which operates at the national and international level. The Joint FAO/IAEA Division is actively coordinating and supporting this network of national animal disease diagnostic laboratories in 40 African and 17 Asian countries.

The Science

Multi-pathogen assays are rapid laboratory tests that look for different microorganisms (i.e. bacteria and viruses) responsible for animal diseases in one single reaction, thus saving time and money. The Animal Production and Health Laboratory uses these tests to diagnose the specific illnesses of sick animals as quickly as possible.

Pathogens are the causative agents of infectious diseases; they can be passed easily from one animal to another. To properly treat the animals and contain the outbreak, the specific causative agent has to be identified. Since distinct pathogens may exhibit similar signs of disease, identification is not always possible based on clinical examination of the animals, which makes the laboratory test essential. Using the multi-pathogen assay, scientists can now determine exactly what pathogen is present using only one test.

Samples are first taken from the infected animals and then processed in the laboratory and analysed in a real-time polymerase chain reaction platform, which reveals the presence and the type of pathogen. This test was developed by the Animal Production and Health Laboratory and validated in collaboration with veterinary laboratories from the VETLAB Network.

OFF-SITE ENVIRONMENTAL REMEDIATION IN FUKUSHIMA CONTINUING

日本福島電廠外之環境保護工作持續進行

Japan's Ministry of the Environment (MOE) updated the status of on-going environmental remediation activities in the areas affected by the accident at TEPCO's Fukushima Daiichi Nuclear Power Station in 2011.

The update was the result of the 2nd IAEA-MOE Consultancy Meeting (Experts' Visit) on Environmental Remediation of Off-Site Areas after the Fukushima Daiichi Nuclear Power Station Accident, hosted by the MOE in Tokyo and Fukushima from 14 to 18 November 2016. The main objective of the meeting was to provide a forum for discussion for the benefit of Japanese authorities from inputs provided by IAEA staff and experts in order to enhance the ongoing remediation projects. Japanese authorities also briefed the IAEA on the progress made so that the information can be shared with the international community.

Continued progress with the remediation of off-site areas affected by the accident was observed. Japanese authorities said they expected the completion of the full-scale decontamination project in the Special Decontamination Area (SDA) towards the end of March 2017. They highlighted this milestone as one of the critical steps paving the way to broader lifting of the evacuation order. They added that some municipalities in the SDA had already lifted evacuation orders.

During the meeting, the IAEA and Japanese teams discussed the following topics:

1. Current status of environmental remediation in and around Fukushima Prefecture

2. Volume reduction of the waste materials resulting from environmental remediation

3. Knowledge management on environmental remediation

4. Integration of the overall remediation efforts in the recovery actions

5. Development of waste estimate tool (aimed at predicting the amount of waste to be generated with decontamination works after a radiological emergency or nuclear accident)

Visits to specific locations and ongoing projects were conducted to get a better understanding of the situation. These included visits to the Fukushima Prefectural Government, Date City, the Fukushima Prefectural Centre for Environmental Creation in Miharu Town, the Heat Treatment Facility in Iitate Village, the Interim Storage Facility (ISF) in Okuma Town and TEPCO's office in Koriyama City.

The leader of the IAEA team, Horst Monken-Fernandes, an Environmental Remediation Specialist at the IAEA Department of Nuclear Energy, noted that the Ministry of the Environment, the Fukushima Prefectural

Government and other stakeholders have been making efforts to communicate information about radiation with residents through the Decontamination Information Plaza and the Fukushima Prefectural Centre for Environmental Creation.

Shoji Nishida, the Mayor of Date City, highlighted that trust between experts and decision makers was essential for timely and effective decision-making during an emergency situation.

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核能署每月新聞稿 - 2017 年 3 月

RADIOACTIVE WASTE INVENTORY AND REPORTING METHODOLOGY

放射性廢棄物的清單和報告方法

On 21-22 February 2017, the NEA Expert Group on Inventorying and Reporting Methodology (EGIRM) held a meeting with experts representing Belgium, Canada, Germany, Italy, Russia and the United States, as well as the International Atomic Energy Agency (IAEA), the World Nuclear Association (WNA) and the European Nuclear Safety Regulators Group (ENSREG). Participants discussed a draft report on methodology development, which compiles the expert group's work, and agreed on its submission to the NEA Radioactive Waste Management Committee (RWMC) for approval. The draft report is expected to be issued in 2017 and contains a finalised methodology and a presentation table developed to compare different national radioactive waste and spent fuel inventories.

REGULATORY REVIEW AND COMMUNICATION OF THE SAFETY CASE

安全事故的監管審查和通報

Compiling safety cases for geological repositories is a highly technical undertaking. Reviewing such safety cases is equally challenging and often requires knowledge and experience in different disciplines. Recognising the potential benefits of a common regulatory review approach for safety cases, as well as the need to improve the understanding of stakeholder interactions, the NEA Integration Group for the Safety Case (IGSC), the European Pilot Study Group and the European Commission Sustainable Network of Technical Expertise (SITEX) jointly organised a workshop on 21-22 February 2017 in Paris, France, to explore the subject of regulatory reviews and communication of safety cases for geological disposal of radioactive waste. Participants noted that divergent views are unavoidable and that successful communication relies on mutual efforts. Radioactive waste managers and regulatory authorities should develop a working method, without compromising their independence, to consolidate and to co-ordinate stakeholder participation and access to information.