



Support to Southern African States in Nuclear Safety and Safeguards

Newsletter, November 2019

Training in Nuclear Safety, Security and Safeguards in the Transport of Radioactive Materials

The Zambia Radiation Protection Authority (RPA) in collaboration with the International Science and Technology Center (ISTC) hosted a training course on nuclear transportation safety in Lusaka in July 2019. The fifty-three participants came from line ministries, regulatory bodies, hospitals, mining industries, a uranium exploration company, a research and training centre, the national anti-terrorism institution, and companies involved in industrial radiography and in transportation. Participants from customs offices from DRC and Mozambique joined the training. RPA Executive Director Dr. Boster Siwila provided an overview of the Authority's mandate to protect the public, workers and the environment while advising the Government on respective policies. He explained the safety procedures of transportation of Uranium Oxide Concentrate (UOC). Currently, the largest quantity of radioactive material transported through Zambia is the UOC from Kayelekera Mine in Karonga, Malawi to Walvis Bay, Namibia. Other lecturers included the RPA's experts Melody Mwewa, Emmanuel Lungu, Grace Bwalya Susiku, James Simuko Phiri, Miyombo Miyombo, and Major Choongo Zaza, from the Ministry of Defence. Mrs. Misozi Kapeya, the RPA's legal officer, explained how the Authority is involving stakeholders in drafting regulations on transportation of radiation sources. During a practical session on the Project's web-based Information Tracking System (ITS), one of the participants, equipped with GPS and a cellular phone, was dispatched on the streets of Lusaka. The trainees observed his movements projected on a screen and followed his communication with the operator. In a specially designed questionnaire they shared valuable comments about the desired improvement of the ITS. The trainees visited the Chirundu Border post, where they met customs officials and attended a presentation by Mr. Christopher Mwango from the Zambia Revenue Authority on safety and security incidents of radioactive materials. The training in Lusaka demonstrated the usefulness of the train-the-trainer approach applied under Project MC 5.01 15B, whereby representatives from the industry, government agencies and research communities hone their knowledge in nuclear safety and safeguards. The increase in the post test results compared to the entry test was above 15 percent of improvement of knowledge and skills.

Our Results:

90+ professionals from national institutions of Zambia, Malawi, South Africa, Mozambique, Tanzania, Botswana, Eswatini and DR Congo trained in nuclear safety, security and safeguards in the transportation of Uranium Ore Concentrate and other radioactive materials;

10 experts from Tanzania, Zambia and Malawi trained in using the web-based Information Tracking System to monitor the transportation of radioactive materials within and across national borders;

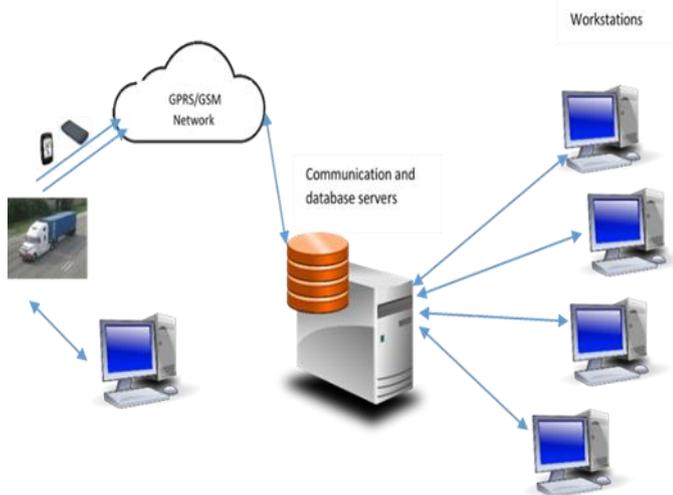
23 representatives of public organizations and academia from 13 southern African states learned from the experience of European nuclear institutions during a study visit to Finland;

400+ African high school and university students took part in nuclear advocacy initiatives supported by the project and the ISTC in Kenya, Zambia and South Africa.



A Web-Based Information Tracking System to Monitor the Transportation of RN Materials

A three day training, hosted by the Tanzania Atomic Energy Commission and led by qualified instructors of Software Company Ltd. on working with the projects' Information Tracking System (ITS) was held in Arusha for ten experts from Tanzania, Zambia and Malawi.



Testimonials by the trainees

We are glad that we are going to host this system and will provide all the necessary infrastructure to run the system. Adam Marco, Tanzania

The system is very helpful. Really nice app and I like it. Ian Mukabe, Zambia

This training was so informative because it answered the very important questions. We were able to track the shipment from the start point to the end point. Gift Mmangitsa, Malawi

It was a great experience for us!We were able to learn how to work with the ITS System built by Software Company. It is a very easy and convenient process. TAEC Team



A short video, shot during the training in Arusha, illustrates a real-time simulation of tracking the movement of a radiation source with the ITS. The System allows the collection and evaluation of all relevant data in a fast, continuous, comprehensive and consistent manner. The system provides an opportunity for information sharing among the authorities of participating countries while letting other SADC users at national and international level to take part upon their request. By October 2019, the Software Company Ltd., the developer of the ITS, has supplied and installed servers and equipment for the workstations in Tanzania, Zambia, Malawi and the RSA. The Company is preparing to deliver a second specialised training for trainers on the use of ITS.



From the Production Mine to the Exporting Seaport

In November 2018, the National Nuclear Regulator/Center for Nuclear Safety and Security (NNR/CNSS), in conjunction with ISTC conducted in Krugersdorp, RSA, the first training on "Nuclear Safety, Security and Safeguards in the Transport of Uranium Ore Concentrates (UOC) and other Radioactive Materials" for project countries. Over 40 experts from government agencies and regulatory bodies representing Malawi, Zambia, Tanzania, and South Africa, as well as representatives from SADC countries, Botswana, DRC and the Kingdom of Eswatini attended the training. Paul Hinrichsen, Principal Specialist, NNR, and Prof. Johan Slabber, University of

Pretoria, lectured on IAEA safeguards requirements for inter-state transport of UOC and on technical aspects of the safe transport of UOC and radioactive sources. A full day site visits to the Nuclear Fuels Corporation (NUFCOR) and NECSA South African Nuclear Energy Corporation SOC Ltd. enabled the participants to get an overview of the process of production, packaging and transportation of ammonium diuranate (ADU) and UOC. The trainees participated in a Case Study session on Nuclear Material Safeguards and Security Aspects during Transportation of UOC and Radioactive Sources to apply theory to practice and elaborate in group solutions to assigned tasks. A Comprehensive Evaluation was completed by all participants to gauge their understanding of the training material. The training gave an opportunity to look closely at gaps of the regulations in each participating country and to identify their needs for further implementation of project MC 5.01/15 B.

Joining Forces with the SADC Nuclear Regulators' Network



The two-day joint meeting of SADC Nuclear Regulators' Network and the Steering Committee of project MC5.01/15B completed on a high note in Malawi on 11 October 2019, when the 40+ participants adopted common decisions about the activities they will implement during the extension of the project within the next 12 months. Zambia and Malawi expressed their readiness to organize a round of trainings to hone the skills of their national experts in operating the Information Tracking System (ITS) for monitoring and reporting the movement of radioactive materials. A table top and field exercise that provides insights into the ways and means to address the

challenges to the information management in the nuclear field will be prepared by the project's partners from Finland. At least three awareness raising events were discussed as a collective effort to spread the word about the project's activities and its potential to assist SADC member countries to work together on harmonizing safety and safeguards regulations and process in the nuclear field and in particular in the transportation of Uranium Ore and other radioactive materials. These events will be tailored to various target groups, and in different venues, namely: representatives of SADC's Secretariat in Gaborone, Botswana; civil society actors and advocates from European NGOs in Vienna, Austria; members of AFCONE who will gather for a meeting in Pretoria, South Africa. For the first time since the start of the project and its efforts to engage SADC member countries, a representative of the Comoros has joined the deliberations. The Union of Comoros is now the tenth country, together with the Kingdom of Eswatini, Lesotho, Madagascar, Mozambique, Angola, Seychelles, Botswana, South Africa and the DRC that has joined the original four project countries – Zambia, Malawi, Tanzania and Namibia – to share information about national and regional needs in addressing the challenges of nuclear safety and safeguards across southern Africa.

On 29 April 2019 in Lusaka, the Prime Minister of Tanzania Hon. Kassim Majaliwa officially inaugurated the Second Joint Meeting of SADC Nuclear Regulators' Network and the fifth Steering Committee of Project MC 5.01/15 B. Mr. Majaliwa greeted over 40 participants coming from 16 countries and international organizations from Africa, Europe and Central Asia, who gathered at the city of Arusha, headquarters of the Tanzanian Atomic Energy Commission (TAEC). The Prime Minister thanked ISTC for choosing the United Republic of Tanzania to host "this special event." He extended his "deep appreciation to the EU for the continuous support in ensuring that the nuclear safety, security and safeguards in the region are reinforced". The prime minister recalled: "the transportation of nuclear and other radioactive material is a global concern and not a one-country issue. It is therefore important for the SADC region to have harmonized guidelines for nuclear material safety and security."



A three-day regional conference on enhancing Africa's capacity on nuclear safety, security and safeguards took place in Lusaka in August 2018 with over 110 participants from the public, private and civil society sectors from ten African countries. Bernard Kapasa, Permanent Secretary at the Cabinet office, speaking on behalf of Dr. Roland Msiska, Secretary to the Cabinet, delivered a key note speech at the conference, convened jointly by Zambia's Radiation Protection Authority, NEPIO, the Nuclear Science and Technology Center, the Ministry of Information and the National Nuclear Regulator of South Africa. Heads and senior managers of radiation protection authorities from Malawi, Tanzania, Zambia and South Africa talked about their national nuclear security and safety regimes and

infrastructures. Representatives from national regulators and business operators discussed prudent management practices in the transportation of nuclear materials. A main point in the agenda was the presentation of the web-based communication system under project MC5.01/15B to monitor and control the safe transportation of yellow cake and other radioactive materials. The event garnered the interest of Zambian national media with a [leading article in Lusaka Times](#). One of the outcomes of the conference is the establishment of the Zambian chapter of the continental network African Young Generation in Nuclear (AYGN). The young professionals adopted a position statement, pledging -inter alia- 'to support the application of safeguards requirements ... and to create awareness and commitments thereof among the governments and the populations across the [SADC] member states...'

The European Union Shares Best Practices with its African Partners

Finland has a most impressive record in Europe in terms of proven expertise in nuclear safety and of impeccable normative and institutional framework for the use of nuclear energy. Organized by ISTC in cooperation with Enviro-nics Ltd., the CBRN Suomi Association, and Societal Security Solutions Ltd., a week-long study visit brought to Finnish nuclear institutions 23 representatives of public organizations and academia from 13 southern African countries in June 2019. They visited Finland's Radiation and Nuclear Safety Authority (STUK), the Helsinki City Rescue Department, the Finland's biggest port Hamina-Kotka – a major cargo harbour on the Baltic Sea. At a meeting at South-Savo Rescue Department in Mikkele, the African experts learned about the Rescue Services and the Eastern Finland Situation Awareness Center. New techniques that would save lives during a CBRN incident were put to test during the Simulation exercise TOXI-triage in Mikkele. Finland participates in a series of European exercises and Helsinki hosts the EU Center on Hybrid Threats. The African experts travelled to Eurajoki site and visited the TVO Nuclear Power Plant, which provides almost a quarter of the Finnish net electricity acquisition, and the underground rock characterization nuclear waste facility ONKALO.



Advocating the culture of nuclear safety, security and safeguards



ISTC, together with the International Atomic Energy Agency, the African Commission on Nuclear Energy, the World Nuclear University, the International Youth Nuclear Congress and other international organizations, delivered a strong message of encouragement to the African Young Generation in Nuclear (AYGN) as this continent-wide network of young professionals convened its Second African Youth Nuclear Summit in Pretoria on 8-11 October 2019. AYGN gathered over 100 participants from the fields of nuclear science, research, education and industry and invited managers and CEOs from public and private nuclear bodies and institutions to discuss a wide range of issues related to the peaceful and innovative use of nuclear power, technologies and products.

✚ Project MC5.01/15B attracted attention at the first International Regulators Conference on Nuclear Security in Africa, convened in Morocco in October 2019. Members of the Project's pool of experts presented a paper on the existing safety and security frameworks, challenges and opportunities for the strengthening and harmonization of nuclear regulatory frameworks in Malawi, Namibia, Tanzania, Zambia, and in the SADC region at large. The paper depicts the overall situation of the safety and security regimes in the participating countries - enacted laws, promulgated regulations, and established policies - that are applicable to uranium mining, processing, reclamation, long-term stewardship, transportation, and security.

✚ ISTC acknowledges duly the role of the African Commission on Nuclear Energy (AFCONE) in putting together the puzzle of sub-regional collaboration into the larger continental scheme. AFCONE and ISTC established relations in April 2019. On 25 June 2019 the ISTC Management became the first external delegation to officially visit the new AFCONE Headquarters in Pretoria. Three months later, ISTC and AFCONE signed a Memorandum of Cooperation that aims to help establish specialized human and operational capacities able to fully meet the African demand for peaceful nuclear applications in contribution to developmental goals.

✚ Lessons from the implementation of project MC5.01/15B were shared at the ESARDA Symposium on *Safeguards and Nuclear Material Management* convened in May 2019 in Stresa, Italy. At a roundtable on *Outreach and Partnership*, Kamen Velichkov made a presentation based on the experience accumulated by ISTC throughout the implementation of EC-funded projects in Africa, in particular, the multiple countries project *Support to Southern African States in Nuclear Safety and Safeguards*, under the Instrument for Nuclear Safety Cooperation, and also through the support ISTC accorded to the establishment of the network of professionals *African Young Generation in Nuclear (AYGN)*. In 2019, ESARDA, the association of European organizations formed to advance and harmonize research and development (R&D) in the area of nuclear safeguards, celebrates its 50th anniversary.