



# Support to Southern African States in Nuclear Safety and Safeguards

Newsletter 4, December 2020

## Sharing Knowledge and Learning on-line in Time of Pandemic



The 2020 global health crisis transformed the in-person attendance of Project MC 5.01 15B activities into an on-line participation in knowledge sharing and learning events thus expanding the project's network of like-minded nuclear experts. Together with representatives of academia, public institutions, civil society, and international organizations,

the experts from the project participating and partner countries took part in a series of virtual discussions aiming to strengthen the regional cooperation in the pursuit of all matters related to nuclear safety and safeguards in Southern Africa.

An online seminar on *Fostering and Sustaining Non-Proliferation Verification Systems through Development of National and Regional Nuclear Safeguards Capacities* gathered on 23 November 2020 on the initiative of the African Commission on Nuclear Energy (AFCONe) representatives of IAEA, the European Union, the US Department of Energy and ISTC to discuss with nearly 100 African experts the requirements stemming from state participation in the Nuclear Non-Proliferation Treaty and the African Nuclear Weapon Free Zone Treaty (Pelindaba Treaty).

On the eve of the IAEA General Conference 64 convened in Vienna in September 2020, Project MC 5.01 15B and ISTC supported AFCONe in convening an online expert discussion on the topic *African Uranium Resources: Exploration, Exploitation and Cooperation Opportunities*. The event attracted the attention of approximately fifty experts from AFCONe, the IAEA, African countries and Kazakhstan.

On 25 August 2020, ISTC and the Kenyan National Commission for Science, Technology and Innovation (NACOSTI), organized a webinar for nuclear experts from Eastern and Southern African countries, participants in the project. Entitled *Benefits from Interregional Dialogue on Nuclear Governance: Africa and Central Asia*, the webinar was attended by the Executive Secretary of AFCONe, the Deputy Director of the Nuclear Regulatory Authority of Kenya, members of the African Nuclear Generation in Nuclear, its Kenyan chapter, and experts from government agencies, industries, and academia.

On 30 June, at the invitation of the Kenya Bureau of Standards (KEBS), ISTC and Project MC 5.01 15 B experts took part in a webinar themed: *Radiation Technical Opportunities Programmes in Africa*. During the on-line event 120+ nuclear experts from Kenya and other African states deliberated on how to map better solutions for peaceful nuclear applications in the country and the East African region.

On 18 June 2020, Project MC 5.01 15B representatives joined an on-line discussion, initiated by the Kenyan Youth Generation in Nuclear, on the prospects for nuclear science and technology in Africa, including on how to advocate for better nuclear education and promote the need of nuclear safety and security across the continent.

## HIGHLIGHTS OF RESULTS

**8 countries** - half of SADC Member States - host servers, workstations and equipment needed to ensure tracking of Uranium ore deliveries across Southern Africa

**55 IT specialists** acquired knowledge and skills to use the web-based Information Tracking System

**9 SADC states** opted to prepare in-depth country specific reports analysing their normative frameworks, institutions, and policies to enhance their nuclear and radiation safety

**48 participants** were selected from 13 SADC countries for study visits to Finland and to Kazakhstan

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



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# Experts from Nine Southern African States and their International Partners Discuss Thematic Reports on Nuclear Safety and Safeguards

*The country-specific reports are among the main deliverables from Project MC 5.01 15B. These are conceived to survey in each country in focus the national legal and regulatory frameworks that tackle nuclear safety and safeguards; the institutional infrastructures and stakeholders; the decision-making processes and policies, including preparedness to respond to nuclear threats and crises; the degree of compliance with international norms, standards, and best practices, particularly the conventions included in the UN Security Council Resolution 1540 regarding the non-proliferation of weapons of mass destruction.*

An online working meeting, convened on 4 November 2020, took stock of the elaboration of the country specific reports and charted a way ahead for the preparation of new national studies and a regional report under Project MC 5.01 15B. Based on the experience from finalized reports about the state of play with nuclear safety and safeguards in the four project participating countries (Zambia, Malawi, Tanzania and Namibia), experts who will be working on reports in additional five southern African states (Eswatini, Madagascar, Mozambique, Zimbabwe and South Africa) received useful guidance.

Dr. Timur Zhantikin, Director, Kazakhstan Nuclear Power Plants, who assessed the reports elaborated so far,

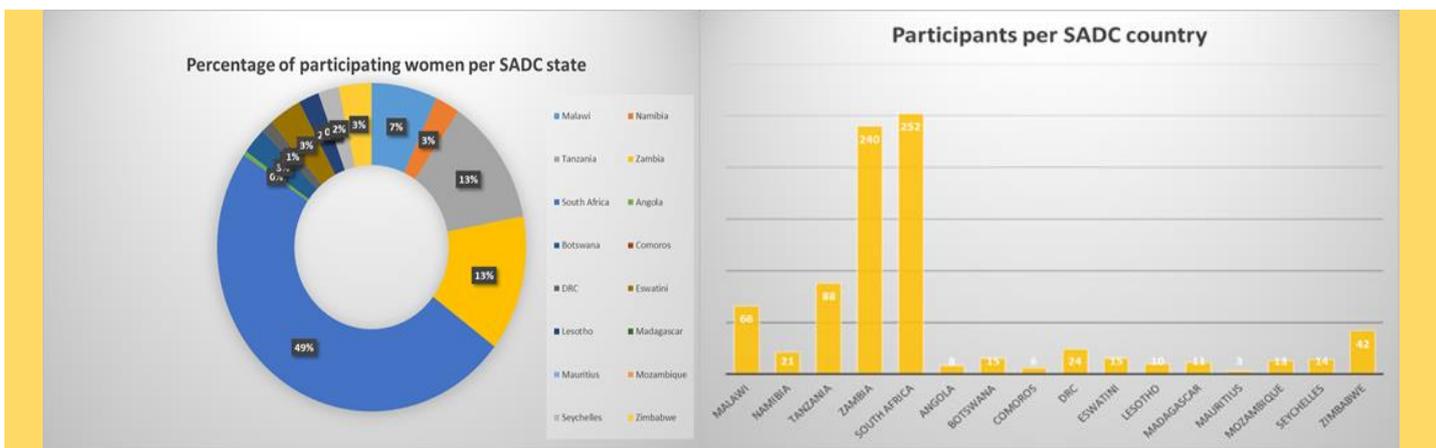
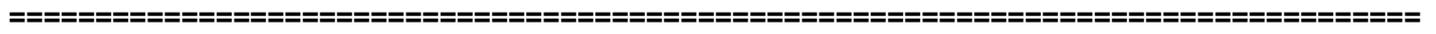
observed that the main nuclear activity in the surveyed countries is uranium mining and milling, and transportation of uranium ore concentrate (UOC), but there are also other fields of nuclear applications like medical, agricultural, various industrial technologies. The development of legal and institutional infrastructures differs from country to country depending on the nuclear activities. The comparative analysis of the national reports reflects these challenges. However, one of the common problems is the lack of regional nuclear cooperation in transportation of UOC.

Master Simoni, an environmental inspector from the Malawian Atomic Energy Regulatory Authority (AERA) presented the country specific report: *Strengthening Frameworks for Safety, Security, and Safeguards of Uranium Ore Concentrate in Malawi*. By applying as benchmarks an exhaustive set of nine clusters of internationally adopted standards and best practices, the study provides a snapshot of the existing national policies and practices, legal and institutional frameworks, and administrative procedures that cover all radioactive materials, activities and facilities and regulate specific types of activities, e.g., transport, waste management, NORM etc.



The report contains a series of recommendations. It also stresses the need of regional cooperation for management of emergencies related to the transportation of UOC and other radioactive materials.

Victoria Kachimera, Head of Malawi’s national regulator, and Manuel Martin-Ramos, Senior Expert, European Commission’s Joint Research Center provided comments on the report’s findings and recommendations. A key question ensued: What are the challenges that regional cooperation faces in uranium transportation matters? Answers will be expected from the regional study to be elaborated under the leadership of Zambia. Dr. Boster Dearson Siwila, Executive Director, Radiation Protection Authority (RPA), made a presentation on the *Expected Inputs for the Regional Report and Nuclear Transport Information Exchange Arrangements*. The regional report will contain comparative analysis of the existing legal frameworks and regulatory policies and will examine the possibility of bilateral and/or multilateral arrangements on information exchange on transport and prevention of accidents and hazards.



## The Web-Based Information Tracking System Expands to More Southern African Countries



To discuss a planned expansion and future use of the Information Tracking System (ITS) under Project MC 5.01 15B, the ISTC and the Software Company Ltd. convened on 11 November 2020 an online meeting with representatives of the project participating and partner countries.

ITS is online and working since 1 June 2019 with one server installed in TAEC - Arusha, Tanzania, and a second one located in NNR - Pretoria, South Africa. All necessary equipment for ITS use is delivered also to Malawi and Zambia. Nikolay Palov, the Managing Director of Software Company, put into timeline the delivery to other countries of equipment and trainings and elaborated on the ITS security requirements. He introduced future trainings for DR Congo, Mozambique, and Madagascar: a preliminary training will target designated IT specialists, while the actual training will be offered to larger groups of users.

ITS applies all information security recommendations for sensitive data, described in IAEA's Nuclear Security Series No.23-G. Experts from Software Company outlined the new ITS features under development: shipment simulation, multilingual support, support for different radioactive source types, data exchange with international (RAIS, IORIS) and local databases. The Software company is working on developing new features, such as: multi-map mode, active trackers view and mobile devices tracking. The proposed approaches to implement data exchange include API methods, encrypted file transfer and a specific tool.

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**The Information Tracking System (ITS) – a key component of Project MC 5.01 15B – is conceived as a common web-based platform for data exchange and monitoring the transportation of Uranium Ore Concentrate and other radioactive materials within and across the borders of several southern African states. The ITS Training and Support Website <https://sadcproject.novotika.com> contains general information, accessible to everyone, about the trainings conducted so far in Tanzania and in Zambia, as well as an on-line Training Manual for registered users.**

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## Partnering to Strengthen Nuclear Safeguards in Africa

On the initiative of the African Commission on Nuclear Energy (AFCON) several international organizations convened on 23 November 2020 an online seminar on the topic: *Fostering and Sustaining Non-Proliferation Verification Systems through Development of National and Regional Nuclear Safeguards Capacities*. AFCON teamed up for this event with the IAEA Department of Safeguards; the U.S. DOE/NNSA International Nuclear Safeguards Engagement Program (INSEP); the European Safeguards Research and Development Association (ESARDA) and ISTC. The seminar attracted the participation of approximately one hundred African experts.

The underlying rationale for the event was that both the Nuclear Non-Proliferation Treaty and the African Nuclear Weapon Free Zone Treaty (Pelindaba Treaty) require State Parties to conclude comprehensive safeguards agreements (CSAs) with the IAEA. Various African Union Member States and Pelindaba Treaty State Parties with CSAs in force (some also with small quantities protocols or additional protocols) require assistance in establishing and improving their State Systems of Accounting for and Control of Nuclear Material (SSACs) to effectively fulfil their obligations in accordance with such Agreements and Protocols.

The role of AFCON was outlined by Messaoud Baaliouamer, AFCON Executive Secretary, and Dr David Otwoma, Chief Analyst, NACOSTI, Kenya. To ensure compliance with international safeguards obligations the AFCON aims at optimal synergies of internal assets and external assistance. To encourage regional cooperation on the continent AFCON intends to select and designate African Regional Collaborating Centres to lead the scientific and technical programs.

On its part IAEA stands ready to provide support for Africa, as stated by IAEA Deputy Director General Massimo Aparo and Dr Van Zyl De Villiers, IAEA Safeguards Operations Division Director. Last September the IAEA launched, a comprehensive capacity building initiative for SSACs, named the COMPASS Initiative. In a pilot project five states receive assistance tailored to their specific needs to strengthen their poorly mandated and under-resourced national authorities. Rwanda is among these states, a country which ISTC supported in the last three years in the field of nuclear and radiological security. Ms. Karyn Durbin, Director, INSEP, and Dr Willem Janssens, ESARDA Chair, EC Joint Research Center, presented the opportunities, that the US and the EU, respectively, offer as capacity building support for safeguards implementation.

Based on their bilateral Memorandum of Cooperation, AFCON and ISTC cooperate successfully on the subject matter of safeguards in 22 African countries where ISTC provides interested African partners with expert advice and technological innovations.

## Handling Nuclear and Radiation Safety with Woman's Hands



Women experts constitute – so far - one third (213) of the entire number of participants (755) in Project MC 5.01 15B activities. These women are outspoken during Steering Committee meetings; they tirelessly prepare the Project's public events and participate conscientiously in trainings and simulation exercises.

Remember the International Conference on Enhancing Africa's Capacity in Nuclear Safety, Security and Safeguards that took place in August 2018 in Lusaka? Ever wonder who contributed wholeheartedly to make it happen – from presenting the event's scenario at a Steering Committee meeting in Pretoria to collecting written feedback forms from over 100 participants? Do you know who will be finetuning Zambia's country report on the nuclear safety and safeguards as part of the Project's milestone results? The answer is: Melody Mwewa, the Manager with the Nuclear and Radiation Safety Department for the Radiation Protection Authority (RPA) of Zambia. She describes herself as “self-motivated, courageous, humble and hardworking” and as “a team player with the ability to adapt and adjust to changing work situations”. Melody first joined RPA as an intern in 2014. Fluent in computer programming, she started learning topics ranging from how to maintain the registers for occupationally exposed workers to how to use the radiation detection equipment in the field. Between 2014 and 2020, as radiation protection officer with the Regulatory Services Department, she contributed to the Department's licensing, standard/enforcement, inspection activities, public awareness, and ICT sections and elaborated several Standard Operating Procedures. She revised the inspection checklist for all radiation practices in Zambia, and participated in operationalizing the Chirundu (2019), Nakonde (2019) and Kasumbalesa (2020) border offices. She is currently co-ordinating the opening of an office in Kapiri Mposhi as part of the efforts to prevent illicit trafficking of nuclear and radioactive materials. Melody was appointed to co-ordinate IAEA projects for the RPA, completed two major projects with the US Regulatory Commission, and acts as the point of contact to implement Project MC5.01/15B. In the last 10 years she honed her professional skills in no less than a dozen of fellowships, trainings, and seminars. In June 2019, Melody joined 23 colleagues from SADC countries nuclear regulators for a study visit to nuclear sites and institutions in Finland to learn from European experience. It is obviously a matter of continuity and principle, that the holder of the Women in Science Scholarship under the Ministry of Higher Education for one of the Best Female students in Physics (2010), is currently spearheading the formulation of the Zambian Chapter of the global Women in Nuclear movement. Dedicated to community outreach, few years ago she conducted train the trainer's workshops for farmers while providing IT support to the mobile technology solution implemented for an UN's World Food Program/Food Reserve Agency pilot project in Katete district. No surprise that her personal slogan is mindful of people and nature: “There is only one mother earth, one

environment and one atmosphere. Therefore, caring and looking after mother earth produces a health and friendly environment, not only for me but for the next generation”.

### In Brief

✚ The encouragement of intra-regional cooperation remains pivotal for the implementation of Project MC 5.01 15B. ISTC works to create conditions for greater inter-regional exchange of experience, including between Southern Africa and Central Asia. A major activity in that regard is the study visit of SADC nuclear regulators to Kazakhstan, the preparations for which are underway despite the postponement caused by the coronavirus-related restrictions.

✚ Tanzania and Madagascar requested assistance in their efforts to improve nuclear safety and safeguards communication and outreach to various stakeholders, including the local communities on the route of Uranium Ore transportation. The planned specific outreach events, namely The First Annual Conference and Exhibition on Nuclear Science and Technology Applications (Acensta 2020, Arusha) and the Nuclear Days (2020, Antananarivo) had to be postponed but they remain parts of the 2021 Project workplan.

✚ To help all interested parties navigate the complex field of nuclear advocacy and communication, ISTC is organizing a series of webinars on stakeholders' engagement for nuclear capacity building, safety, and security. Key resource person will be Ms. Sheriffah Noor Khamseah Al-Idid bt Dato Syed Ahmad Iddid, an Innovation and Nuclear Advocate from Malaysia. The series will jump start on 24 February 2021 with discussion on the Fundamentals of Stakeholder Engagement and presentation of the country report on the Republic of Tanzania.