



**Shaping Africa's Future Through Nuclear
Sciences and Technology: A Competition for
Female Students: GC69**

Vienna, Austria

Background

Nuclear science and technology provide transformative solutions to some of Africa's most pressing challenges, including improving healthcare, enhancing agricultural productivity, and addressing environmental issues. These efforts are critical to achieving the African Union's Agenda 2063 and the United Nations' Sustainable Development Goals (SDGs).

The International Atomic Energy Agency (IAEA) has been instrumental in leveraging nuclear technology for sustainable development through key initiatives such as Rays of Hope, which focuses on advancing cancer care and radiotherapy in low- and middle-income countries; Atoms for Food, which utilizes nuclear techniques to improve agricultural productivity and food security; ZODIAC (Zoonotic Disease Integrated Action), which addresses zoonotic diseases to safeguard human and animal health; and NUTEC Plastics, which promotes innovative nuclear solutions to tackle plastic pollution and support sustainable recycling.

Despite the benefits of nuclear technology, women remain underrepresented in this field across Africa. To promote gender equality and inspire women to pursue careers in nuclear sciences and technology, the IAEA has partnered with Women in Nuclear Global (WiN Global), an international organization which has been committed to supporting and advancing the role of women in the nuclear sector for over 30 years. Together, the IAEA and WiN Global work to create opportunities for education, mentorship, and leadership development, fostering a more inclusive and diverse workforce in nuclear-related fields. Recognizing the critical need for women representation, the IAEA's Director General, Mr. Rafael Mariano Grossi, has launched the Marie Skłodowska-Curie Fellowship Programme. This visionary initiative aims to significantly increase the number of women involved in the nuclear field, ensuring that their talents and perspectives drive innovation and progress.

This competition aims to build on this collaboration by engaging female students to explore innovative solutions within these key initiatives, empowering them to contribute to sustainable development and drive global change.

Purpose

The purpose of the competition is:

To enable young African women to demonstrate their understanding of nuclear science and technology in Africa, and to showcase the diverse talents present across the continent.

Scope of Competition

The competition focuses on creating impactful, innovative, and sustainable solutions or ideas that align with the IAEA's initiatives and contribute to achieving the SDGs. Submissions should reflect an understanding of nuclear science and technology's role in addressing Africa-specific challenges. The competition aligns with IAEA's key initiatives:

1. **Rays of Hope initiative:**

The IAEA Rays of Hope initiative (RoH) is aimed at assisting Member States in establishing or expanding their capacities in radiotherapy and multimodality medical imaging. These synergistic radiation applications in medicine are vital to caring for cancer patients. To see more information about the initiative please use the following link ([RoH](#)).

Proposed ideas are expected to improve cancer treatment, expand access to radiotherapy, or enhance nuclear medicine and medical imaging services for cancer diagnosis in African Member States.

2. **Atoms for Food:**

The initiative seeks to provide countries with ground-breaking solutions tailored to their specific needs and circumstances by harnessing the advantages of nuclear techniques along with other advanced technologies to enhance agricultural and livestock productivity, natural resources management, reduce food losses, ensure food safety, improve nutrition and adapt to the challenges of climate change. To see more information about the initiative please use the following link ([Atoms4Food](#)).

Proposed ideas are expected to address crop enhancement, pest control, or soil and water management using nuclear techniques to ensure food security and sustainable agriculture.

3. **ZODIAC:**

ZODIAC was established in June 2020 to help countries prevent pandemics caused by bacteria, parasites, fungi or viruses that originate in animals and can be transmitted to humans. Using a systematic and integrated approach, ZODIAC will strengthen the preparedness and capabilities of Member States to rapidly detect and respond to outbreaks of such diseases. To see more information about the initiative please use the following link ([ZODIAC](#)).

Proposed ideas are expected to focus on disease outbreak prevention, monitoring, or diagnostics at the intersection of animal and human health, integrating nuclear-based approaches.

4. **NUTEC Plastic:**

NUTEC Plastics is the IAEA's flagship initiative to address the global challenge of plastic pollution. It brings together countries and partners from around the world to fight plastic pollution on two fronts: at point of source, by introducing new technologies to improve plastic recycling; and in the ocean, where the bulk of plastic waste ends up. To see more information about the initiative please use the following link ([NUTEC](#)).

Proposed ideas are expected to target plastic waste management, sustainable recycling innovations, or broader environmental challenges using nuclear science.

All submitted videos should also highlight the role of women in socioeconomic development.

Target Audience

The competition is open to female students from Africa, aged 18–25, enrolled in accredited universities or technical institutions.

Competition Format

Women participants will work individually or in teams of up to three members to submit their videos focusing on innovative solutions or ideas aligned with one of the IAEA initiatives mentioned above.

Submission Guidelines

Participants must submit:

- ✓ A short video presentation (5–7 minutes) through the e mail to the IAEA (a.elrefaei@iaea.org).
- ✓ The deadline of receiving the videos is 30 May 2025.
- ✓ The winners will have the opportunity to visit the IAEA to attend the award ceremony during the GC69.

Evaluation Criteria

Submissions will be judged based on:

- ✓ Relevance to the selected IAEA initiative.
- ✓ Creativity and originality of the proposed idea.
- ✓ Scientific accuracy and feasibility.
- ✓ Impact potential and sustainability.

Prizes and Recognition

Winners will receive:

- ✓ Certificates from the IAEA.
- ✓ Mentorship opportunities with female professionals in the nuclear sector (supported by WiN Global).
- ✓ Final Presentation and attending the Award Ceremony: GC69, September 2025
- ✓ Technical Tour in the Vienna International Centre and visit the IAEA laboratories in Seibersdorf.

Timeline

- ✓ Launch of Competition: 04 April 2025
- ✓ Submission Deadline: 30 May 2025
- ✓ Evaluation and Shortlisting: 30 June 2025

Partnership

Women in Nuclear (WiN) Global & WiN Africa

Sponsors

Women in Nuclear (WiN) Global

Expected Outcomes

- ✓ Increased interest and engagement among young African students in nuclear sciences and technology.
- ✓ Greater awareness of IAEA initiatives and their societal impact.
- ✓ Enhanced awareness of the role of nuclear technology in addressing Africa's development challenges.
- ✓ Empowered female students as change-makers, equipping them with the knowledge and inspiration to shape a better future through nuclear science and technology.