



# **Regional Training Course on the Feasibility Validation of Business Model to Implement Radiation Technology for the Recycling of Polymer Waste**

**Hosted by the**

International Atomic Energy Agency

Vienna, Austria

**10 – 14 February 2025**

**M-Building, M0E75**

**Ref. No.: TN-RER1024-2406944**

## **Information Sheet**

### **Purpose**

The purpose of this event is to train the participants to understand the basics of assessing the feasibility of business models for recycling polymer waste, introduce the use of radiation technology for this purpose, and explore environmental and economic factors through simple examples and case studies.

### **Working Language(s)**

The working language(s) of the event will be **English**.

## **Deadline for Nominations**

Nominations received after **6 January 2025** will not be considered.

## **Project Background**

It is becoming increasingly evident that the environmental challenges facing humanity extend beyond local and regional scales, reaching a continental scope. Consequently, there is a growing demand for economically and technically viable pollution control technologies to address issues arising from gaseous emissions and liquid effluents. Radiation technologists, among other professionals, are actively engaged in the search for such solutions. In recent decades, extensive efforts have been dedicated to harnessing radiation technology for environmental remediation. These endeavours encompass a wide range of applications, including the simultaneous removal of SO<sub>x</sub> and NO<sub>x</sub> from flue gases, groundwater purification, wastewater treatment, and the hygienization of sewage sludge for agricultural use. Radiation processing has established its significance in diverse domains, spanning polymer modification, medical sterilization, and environmental protection. The IAEA plays a pivotal role in advancing the utilization of radiation processing. The agency facilitates the transfer of radiation processing technologies, encourages the sharing of knowledge and expertise, and fosters the development of a professional network dedicated to environmental protection and the sustainable utilization of resources as well as the quality assurance (QA) of radiation facilities.

At the core of the project's objectives lies the reutilization and recycling of polymeric waste to generate value-added industrial goods, thereby mitigating environmental pollution and fostering sustainable development in the region. Through strategic utilization of radiation processing, the initiative aims to strike a balance between economic growth and environmental stewardship, ultimately envisioning a future where polymer recycling epitomizes sustainable development. By enhancing public perception of radiation processing and its role in environmental conservation, the initiative seeks to garner widespread support for its endeavours and catalyse positive change on a regional scale.

These endeavours are underpinned by the harmonized and safe implementation of radiation technologies through the RER1024 project.

## **Scope and Nature**

The training course will include lectures, practical examples, and discussions covering the following topics:

Explore the opportunities and the conduct of ecological and economic pre-feasibility and feasibility studies pertaining to the implementation of radiation technology in polymer waste recycling. This is to gain insights into assessing the viability and potential of radiation technology adoption in their respective contexts and give understanding on the principles of ecological and economic feasibility in business models.

Introduction to tools like cost-benefit analysis and life cycle assessment (LCA). These tools help the participants to decide if using radiation technology is a good idea for recycling projects. Participants will learn how to effectively apply these tools to evaluate the economic feasibility and sustainability of radiation technology in polymer waste recycling projects.

Discussion and feedback on radiation technology feasibility to the participants on their existing or upcoming project for polymer waste recycling using radiation technology. Participants will refine their planning and project design to optimize efficiency and effectiveness.

By engaging in these diverse activities, participants will acquire practical knowledge, refine their project approaches, and advance their understanding of implementing radiation technology for polymer waste recycling.

## **Participation**

The training course is open to RER1024 participating member states. Each country is invited to nominate a maximum of two participants that meets the qualifications as described in the Participants' Qualifications below.

## **Participants' Qualifications and Experience**

The participants should be a member of national project team from countries participating in the current RER1024 project. It is encouraged to each country to nominate one participant coordinating RER1024 and one from the research group or collaborator working on recycling of polymer waste by irradiation project. Participation of young researchers and engineers are highly recommended.

## **Expected Outputs**

The expected outputs of the training course include among others:

- Understand the basics of feasibility studies and how they apply to recycling polymer waste with radiation technology.
- Be introduced to the idea of a circular economy and how it relates to recycling plastics.
- Know simple tools and steps to evaluate whether a project is economically and environmentally sustainable.
- Participants are capable to apply Excel-Based Economic Assessment Modelling (E-BEAM) and Excel-Based application Tool (EBAT), among other available tools, to develop and present a feasibility validation report.

This training course focuses on helping the participants to take the first steps toward understanding and working with radiation technology in recycling.

# Application Procedure

Candidates wishing to apply for this event should follow the steps below:

1. Access the InTouch+ home page (<https://intouchplus.iaea.org>) using the candidate's existing Nucleus username and password. If the candidate is not a registered Nucleus user, she/he must create a Nucleus account (<https://websso.iaea.org/IM/UserRegistrationPage.aspx>) before proceeding with the event application process below.
2. On the InTouch + platform, the candidate must:
  - a. Finalize or update her/his personal details, provide sufficient information to establish the required qualifications regarding education, language skills and work experience ('Profile' tab) and upload relevant supporting documents;
  - b. Download and complete the [Designation of Beneficiary and Emergency Contact Form](#), and upload to InTouch+ ('Profile' tab under the personal section) specifying the document name. If already provided, kindly discard this step; and
  - c. Search for the relevant technical cooperation event (**EVT2406944**) under the 'My Eligible Events' tab, answer the mandatory questions and lastly submit the application to the required authority.

**NOTE:** Completed applications need to be approved by the relevant national authority, i.e. the National Liaison Office, and submitted to the IAEA through the established official channels by the provided designation deadline.

For additional support on how to apply for an event, please refer to the [InTouch+ Help page](#). Any issues or queries related to InTouch+ can be addressed to [InTouchPlus.ContactPoint@iaea.org](mailto:InTouchPlus.ContactPoint@iaea.org).

Should online application submission not be possible, candidates may download the nomination form for the training course from the [IAEA website](#).

**NOTE:** A medical certificate signed by a registered medical practitioner dated not more than four months prior to starting date of the event must be submitted by candidates when applying for a) events with a duration exceeding one month, and/or b) all candidates over the age of 65 regardless of the event duration.

## **Administrative and Financial Arrangements**

Nominating authorities will be informed in due course of the names of the candidates who have been selected, and will at that time be informed of the procedure to be followed with regard to administrative and financial matters.

Selected participants will receive an allowance from the IAEA sufficient to cover their costs of lodging, daily subsistence and miscellaneous expenses. They will also receive either a round-trip air ticket based on the most direct and economical route between the airport nearest their residence and the airport nearest the duty station through the IAEA's travel agency AX Travel Management, or a travel allowance, or they will be reimbursed travel by car/bus/train in accordance with IAEA rules for non-staff travel.

## **Disclaimer of Liability**

The organizers of the event do not accept liability for the payment of any cost or compensation that may arise from damage to or loss of personal property, or from illness, injury, disability or death of a participant while he/she is travelling to and from or attending the course, and it is clearly understood that each Government, in approving his/her participation, undertakes responsibility for such coverage. Governments would be well advised to take out insurance against these risks.

## **Note for female participants**

Any woman engaged by the IAEA for work or training should notify the IAEA on becoming aware that she is pregnant.

The Board of Governors of the IAEA approved new International Basic Safety Standards for Protection against Ionizing Radiation and for the Safety of Radiation Sources. The Standards deal specifically with the occupational exposure conditions of female workers by requiring, inter alia, that a female worker should, on becoming aware that she is pregnant, notify her employer in order that her working conditions may be modified, if necessary. This notification shall not be considered a reason to exclude her from work; however, her working conditions, with respect to occupational exposure shall be adapted with a view to ensuring that her embryo or foetus be afforded the same broad level of protection as required for members of the public.

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