



# Nuclear Sciences and Applications Laboratories

## Science supporting development

The twelve laboratories of the IAEA's Department of Nuclear Sciences and Applications (NA) supports Member States in using peaceful nuclear techniques and technologies to address challenges in food and agriculture, human health environmental monitoring and assessment, and the use of nuclear analytical instrumentation relating to at least 9 of the 17 UN Sustainable Development Goals (SDGs).

The laboratories conduct applied research and development, deliver training and capacity building and provide technical and analytical services at the request of Member States.

Five of the laboratories in Seibersdorf are part of the Joint FAO/IAEA Centre of Nuclear Techniques in Food and Agriculture managed by the IAEA and the Food and Agriculture Organization of the United Nations (FAO). They are a unique collaborative model in the UN system and assist Member States in the following ways:



### **Insect Pest Control Laboratory**

Fighting invasive insect pest species without pesticides through the Sterile Insect Technique (SIT), a method of birth control applied to target insect pest populations.



### **Animal Production and Health Laboratory**

Strengthening food security and livelihoods through improved livestock productivity and control of transboundary animal and zoonotic diseases.



### **Plant Breeding and Genetics Laboratory**

Strengthening food security and resilience to climate change through high-yielding crop varieties resistant to disease, drought and other harsh conditions.



### **Soil and Water Management & Crop Nutrition Laboratory**

Optimizing soil management and agricultural water use efficiency for climate-smart agriculture. Assessing and tracing the fate of radionuclides in soils, crops and agricultural water resources.



### **Food Safety and Control Laboratory**

Establishing effective systems to support food authenticity, food traceability and contaminant control, to enhance food safety and international agriculture trade.

The other Seibersdorf laboratories assist Member States in the following areas:



### **Dosimetry Laboratory**

Ensuring the safe and effective use of radiation in cancer treatment and supports radiation dosimetry by providing calibration and audit services worldwide.

## By the Numbers

MORE THAN

**160** COUNTRIES GLOBALLY

HAVE RECEIVED SUPPORT FROM THE LABORATORIES



**12 LABS** IN THREE LOCATIONS

**8** IN SEIBERSDORF, AUSTRIA

**1** AT IAEA HQ IN VIENNA, AUSTRIA

**3** IN MONACO



IAEA

Nuclear  
Sciences and  
Applications



### **Nuclear Science and Instrumentation Laboratory**

Developing, adapting and transferring nuclear instrumentation and accelerator applications to Member States for a wide range of operations from environmental monitoring to materials science to the preservation of cultural heritage.



### **Terrestrial Environmental Radiochemistry Laboratory**

Providing environmental assessments and ensuring high quality analytical measurements for radioactive, industrial, and other pollution in Member State laboratories by providing laboratory reference materials and conducting worldwide proficiency tests.

NA maintains three marine environment laboratories in Monaco dedicated to the understanding and preservation of a healthy marine environment and the sustainable development of environmental resources. They assist Member States in the following ways:



### **Radiometrics Laboratory**

Supporting reliable marine radioactivity measurements, monitoring and assessments; maintains low level counting facilities and produces certified reference materials to improve the quality of measurements worldwide.



### **Radioecology Laboratory**

Studying the movement of contaminants and biotoxins in marine ecosystems, including their accumulation in seafood species; the carbon cycle and the marine impacts of global warming and ocean acidification.



### **Marine Environmental Studies Laboratory**

Accurately monitoring contaminants in the marine environment by developing and transferring analytical methods, providing reference materials and conducting international proficiency tests, and applying stable isotopic methods for environmental forensics.

One laboratory is located at IAEA Headquarters in Vienna:



### **Isotope Hydrology Laboratory**

Mapping availability and sustainable management of freshwater and the impact of climate change on rivers, lakes and groundwater aquifers.

## **ReNuAL II**

Renovation of the Nuclear Applications Laboratories

Launched in 2014 to modernize the now 60-year-old NA laboratories in Seibersdorf, the ReNuAL initiative has delivered new facilities for 5 of the 8 laboratories, including two new laboratory buildings and a medical linear accelerator facility. The ongoing final phase, known as ReNuAL2, includes construction of a new building to house three laboratories, replacement of ageing greenhouses, and refurbishment of the Dosimetry Laboratory. Contributors to ReNuAL2 will be recognized on a permanent display in the new laboratory building lobby.

