



The Greenhouse Project

*Addressing development challenges
through adapted research.*

Rising to the Climate Challenge

The IAEA seeks extrabudgetary funding to replace aging greenhouses shared by three of its nuclear applications (NA) laboratories. The 12 NA laboratories help deliver on the IAEA's mandate to share with Member States the benefits of peaceful nuclear technologies through training, services, and applied research in food and agriculture, human health and environmental resource management.

The greenhouses are essential to the work of the Plant Breeding and Genetics Laboratory, the Soil and Water Management and Crop Nutrition Laboratory, and the Food and Environmental Protection Laboratory. These three laboratories help Member States breed drought, pest and disease-resistant crop varieties, sustainably manage environmental resources, and ensure food security in the face of a changing climate.

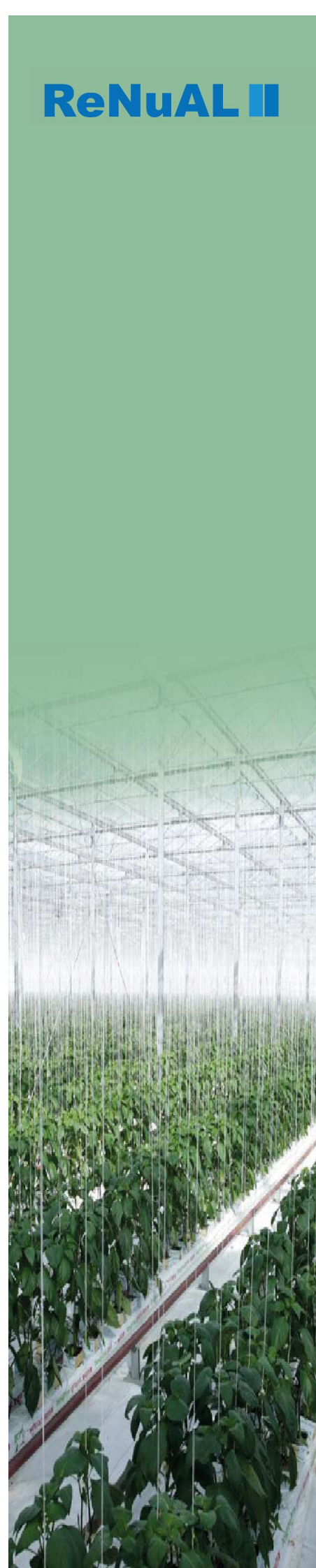
The IAEA's existing greenhouses are over 30 years old and approaching the end of their service life. The need for frequent repairs and maintenance puts at risk important resources and disrupts year-round operations essential to research and development. The new greenhouses will provide expanded space and modern facilities, including a separate climate-controlled hot greenhouse and a climate-controlled growth chamber, providing new on-site capacities for research and development.



ReNuAL II – Building for Science

The IAEA has made significant progress in modernizing facilities of its 8 NA laboratories located in Seibersdorf, Austria, which date from the 1960s. The "ReNuAL" initiative has delivered new facilities for 5 of the 8 laboratories, including two new laboratory buildings and a medical linear accelerator facility.

Replacement of the greenhouses is part of the final project phase, known as ReNuAL2. This phase will also include construction of a new building to house 3 laboratories (provisionally called the FML2) and renovation in-place of the Dosimetry Laboratory. With funding already on hand for the Dosimetry Lab work, the Agency seeks extrabudgetary support for the FML2 and greenhouses. Contributors to ReNuAL2 will be recognized on a permanent display in the FML2 lobby.



Addressing Climate Resilience and Environmental Management

The IAEA, in line with its 'Atoms for Peace and Development' mandate, supports Member States in using nuclear techniques and technologies to address at least 9 of the 17 Sustainable Development Goals (SDGs) set out in the United Nations (UN) 2030 Agenda for Sustainable Development.



The **Soil and Water Management and Crop Nutrition Laboratory** works to improve the resource use efficiency of crops and to protect soil and water resources for sustainable and climate-smart agriculture. Additionally, the SWMCNL helps strengthen Member States' preparedness and response to nuclear or radiological emergencies affecting food and agriculture. The SWMCNL complements these services with technical support and training courses, allowing Member States to develop strategies for sustainable agriculture that minimize land degradation while at the same time adapting to climate change.



The **Plant Breeding and Genetics Laboratory** implements research and training activities for the improvement and climate-change adaptation of crops using plant mutation breeding and associated biotechnologies. Using lab-based, greenhouse-based and field-based research, the Laboratory develops or adapts protocols for the selection of improved plants, the identification of DNA elements underlying mutations, and the acceleration of breeding cycles. Member States are increasingly in need of capacity building in the use of existing and evolving technologies as reflected in rising demand for the Fellowships, Scientific Visits and Group Training Courses the Laboratory hosts for an average of 50 plus researchers annually. Fit-for-purpose and efficient greenhouses are central to the PBGL's research and training activities. They are essential for enabling year-round plant breeding experiments and for testing evolving molecular technologies, developing selection tools for traits of relevance to Member States, and reducing the time to develop improved varieties.



The **Food and Environmental Protection Laboratory** improves food safety and quality for Member States around the world by enhancing food monitoring systems to identify contaminants, tracing the origin of food, and verifying its composition. Ensuring the authenticity, traceability and integrity of the food supply chain is becoming increasingly important to provide confidence needed support trade in agricultural products. The FEPL transfers these techniques to national laboratories and regulatory authorities in Member States to help build and strengthen their food safety control systems.

New Greenhouse Facility Features:

The new greenhouse's improved technical specifications will offer enhanced energy efficiency, which will provide for lower maintenance and operational costs.

- Enhanced energy efficiency; lower maintenance and operational costs.
- Improved operational efficiencies from close proximity to laboratories and new energy centre [or cooling and heating plant].
- Expanded space, allowing 9 new modules with automated water and fertigation systems.

The new design will feature a separate hot greenhouse with independent climate controls and growing area, as well as a newgrowth chamber clustered with modular greenhouses to maximize use of shared common areas.

