

— FAO & IAEA —

ATOMS4FOOD

GROWING FOOD SECURITY



Food and Agriculture
Organization of the
United Nations



IAEA



Around the world, millions of people face hunger and billions cannot afford a healthy diet. Global agrifood systems must feed a growing world population, but they are also responsible for nearly 30% of global greenhouse gas emissions.

An urgent, immediate transformation of agrifood systems is needed – built on resource-efficient, sustainable and resilient agriculture and enhanced food safety, for better production, better nutrition, better environment and a better life, for all.

Science, technology and innovation (STI), including nuclear and isotopic techniques, are essential for this transformation, and for achieving the Sustainable Development Goals (SDGs).

Equitable access to appropriate and affordable STI is essential for innovation, research and development, the creation of effective, evidence-based policies, and the scaling up of technology.



IN A NUTSHELL...

- Global agrifood systems provide solutions but face critical challenges – they must meet the world’s ever growing food requirements, but they contribute to 30% of global greenhouse gas emissions.
- Science, technology and innovation (STI), including nuclear and isotopic techniques, are essential for transforming agrifood systems.
- Nuclear and isotopic techniques provide evidence-based and risk-informed solutions to address agricultural challenges.
- Equitable access, affordability and sustainability are key to the effective application of STI.

Harnessing nuclear and isotopic techniques to enhance food security, boost agrifood system productivity and curb hunger and malnutrition through innovative, country-specific solutions.

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In October 2023, IAEA Director General Rafael Mariano Grossi and FAO Director-General QU Dongyu launched the Atoms4Food initiative to help countries boost food security and tackle hunger through the innovative use of nuclear and isotopic techniques.

Atoms4Food builds on the longstanding, strategic partnership between IAEA and FAO through the unique Joint FAO/IAEA Centre of Nuclear Techniques in Food and Agriculture.

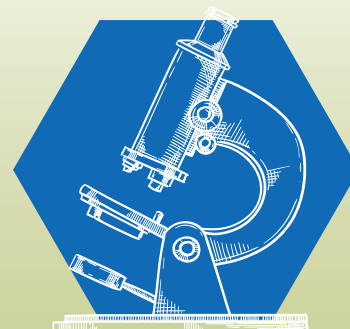


Atoms4Food fosters a more efficient, inclusive, resilient and sustainable global agrifood system, aiming to improve food security through the delivery of seven services that will assess national food security and develop a tailored intervention plan, improve crops, soil and water management and animal production, address insect pests, support food safety and enhance nutrition. Atoms4Food is agile and flexible – the seven services can be delivered individually or as a package, offering tailor-made solutions to support national agrifood system needs.

Atoms4Food supports integrated research for development, technology transfer and capacity-building, bolstered by scaling-up efforts through strengthened partnership-building and resource mobilization.

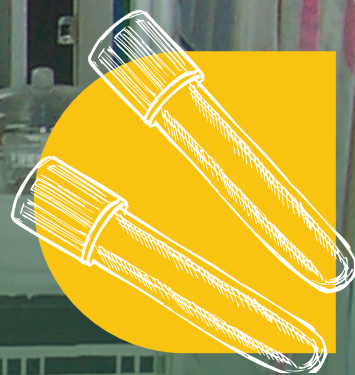


Photo: FAO



IN A NUTSHELL...

- Atoms4Food contributes to the transformation of global agrifood systems through the targeted application of nuclear and isotopic techniques.
- Atoms4Food offers cross-cutting and integrated interventions at national level, based on country-specific needs and delivered through seven services. At the regional level, it will foster South-South and triangular cooperation by facilitating collaborative exchanges among countries.
- Atoms4Food is flexible and impact-driven, it generates learning, accelerates research and development, and facilitates knowledge sharing and partnership building to support the transformation of national agrifood systems and the attainment of sustainable food security.



Atoms4Food Services

Countries face a range of specific challenges, so the seven Atoms4Food services facilitate a multifaceted approach, with opportunities for collaborative research and capacity-building on overlapping topics and the promotion of crosscutting techniques that are applicable across agricultural sectors.

Atoms4Food works closely with individual countries to accelerate innovative research and development, build capacities, and deliver innovative and integrated nuclear and isotopic solutions that are carefully tailored to each country's context.

Atoms4Food Services

Assessment Mission

to map food security needs and to develop a tailored plan to address food security challenges.

Crop Variety Improvement Service

to build crop improvement programmes using the nuclear method of plant mutation breeding to create more robust and nutritious crops.

Animal Production and Health Service

to provide a scientific assessment of the epidemiological situation of animal diseases; interventions for prevention, diagnosis and control; and laboratory and other veterinary service capacities.

Soil and Water Management and Crop Nutrition Service

to use the precision of nuclear and isotopic science to gather information on soil fertility, major crops and their average yield, availability of fertilizer and water irrigation systems.

Insect Pest Control Service

to address insect pests that affect agricultural production by using the nuclear-based sterile insect technique.

Food Safety and Control Service

to assess laboratory capabilities and the ability to conduct surveillance of food hazards.

Public Health Nutrition Service

to inform impactful nutrition programming using evidence on the nutritional value of foods and diet quality derived from the use of stable isotope techniques.



The Pathway to Impact

Atoms4Food aligns with the Sustainable Development Goals and national priority development needs, offering a whole-value-chain approach comprising production, processing, distribution and consumption. It supports the transformation of agrifood systems by:

- Increasing access to scientific evidence to inform agricultural and nutritional policy-making;
- Developing integrated solutions through accelerated R&D, scaling-up, and standardization along the whole value-chain;
- Improving national technical and management capacity to integrate nuclear, isotopic and associated techniques in agrifood systems development;
- Strengthening exchange and collaboration through inclusive partnerships to promote sustainable, climate-smart and nutrition-sensitive agrifood systems; and
- Scaling up existing technologies in agricultural systems.

Atoms4Food is anchored by four strategic pillars:

- Awareness-raising and stakeholder engagement;
- Adaptive and integrated research and development;
- Technical cooperation and capacity-building; and
- Partnership and resource mobilization.



Photo: Veterinary Research Institute, Tajikistan



Working Together to Achieve Food Security for All

Atoms4Food will be implemented jointly by the IAEA and FAO, using existing mechanisms that include the technical cooperation programmes of the IAEA and FAO, and the IAEA's coordinated research activities (Coordination Research Projects and Collaborating Centres).

Implementation will be demand-driven, tailored to country-specific priorities and needs, and delivered using a phased approach. The overarching goal is to enhance national capacities to apply nuclear and isotopic techniques in agrifood systems, emphasizing horizontal upscaling to broaden access to cutting-edge science, technology and innovation for all.

Atoms4Food complements FAO-led initiatives such as One Country One Priority Product, Green Cities, Digital Villages, and Hand in Hand.

To amplify project outcomes and achieve tangible impact, Atoms4Food seeks strategic alliances with public and private stakeholders. FAO and IAEA will use their convening power to mobilize technical and financial resources, and to coordinate with and complement the work of the UN Country Teams.



Country Commitment and Stakeholder Engagement

- Member States request assistance through a formal letter conveyed through the official channels to the IAEA, endorsed by the relevant ministry competent in the area of food and agriculture.
- FAO and IAEA designate focal points.
- A national Atoms4Food Programme Team is formed to assess needs and engage stakeholders.
- An initial meeting sets the collaboration framework and activity timeline.

Country Assessment and Baseline Establishment

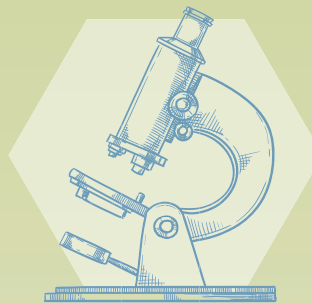
- Conduct a thorough analysis of national policies, infrastructure, R&D capacities, and resources.
- Use virtual coordination or in-person expert missions for detailed assessments.
- Compile findings into a report with actionable recommendations.
- Identify strategic priorities and align them with nuclear and conventional technologies.

Development of the Atoms4Food Country Action Plan

- Draft a plan outlining priorities, actions, outcomes and indicators based on assessment findings.
- Ensure political and financial commitment.
- Integrate with existing national and international frameworks.
- Engage stakeholders for support and coordination.

Implementation of the Atoms4Food Country Action Plan

- Co-led by national authorities, FAO, and IAEA.
- Utilize IAEA and FAO technical cooperation projects and coordinated research projects and extra-budgetary initiatives.
- Emphasize technology transfer, capacity development, and comprehensive training in Atoms4Food service areas.
- Integrate interventions across the entire agrifood value chain based on Atoms4Food service areas.



Partnership Building and Resource Mobilization

- Validate technologies through pilot projects for scalability.
- Promote South-South and triangular cooperation.
- Engage private sector and explore innovative financing mechanisms.
- Develop a fundraising strategy and secure diverse funding sources.

Advocacy, Promotion and Outreach

- Raise awareness and engage stakeholders through various communication activities.
- Empower national authorities to advance agricultural sustainability goals.

Monitoring and Evaluation

- Conduct annual progress reviews based on specific indicators.
- Adjust strategies as needed through adaptive programming.
- Submit annual results reports for review and recommendations.

Sustainability and Future Planning

- Conduct impact assessments to evaluate effectiveness.
- Collect lessons learned and best practices for broader dissemination.
- Develop future strategies based on emerging needs and technological advancements.





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For more information
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