

# Diversity and possibilities for Nuclear Technology

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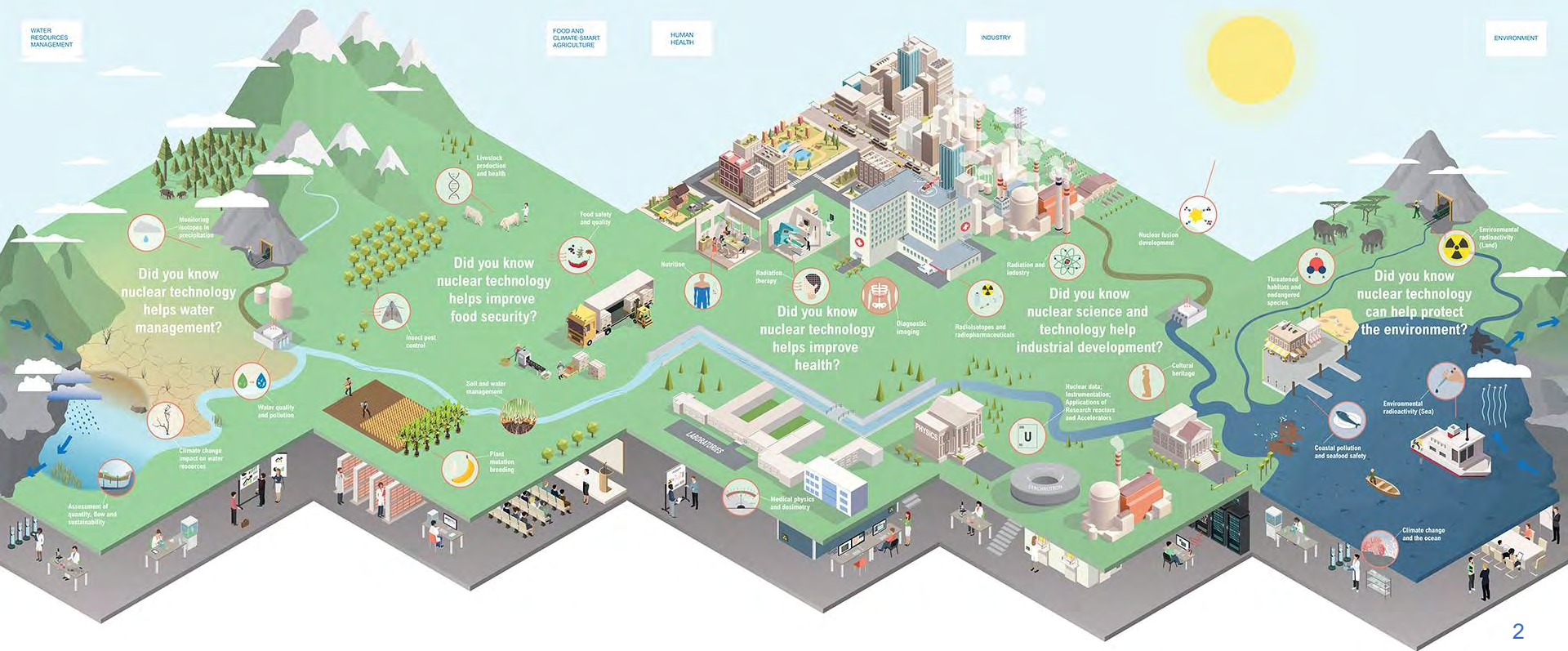
52<sup>nd</sup> JAIF Annual Conference, Tokyo, Japan

April 10 2019



# The world of nuclear applications

[www.iaea.org](http://www.iaea.org)



Analytical services (XRF, PIXE, NAA), food preservation and processing

Food,  
environment

**Radiation  
Technology  
Applications  
for  
Development**

Energy

Materials damage and characterisation (fission, fusion, corrosion);  
Holistic R&D for fuel cycles (mining to waste and recycle)

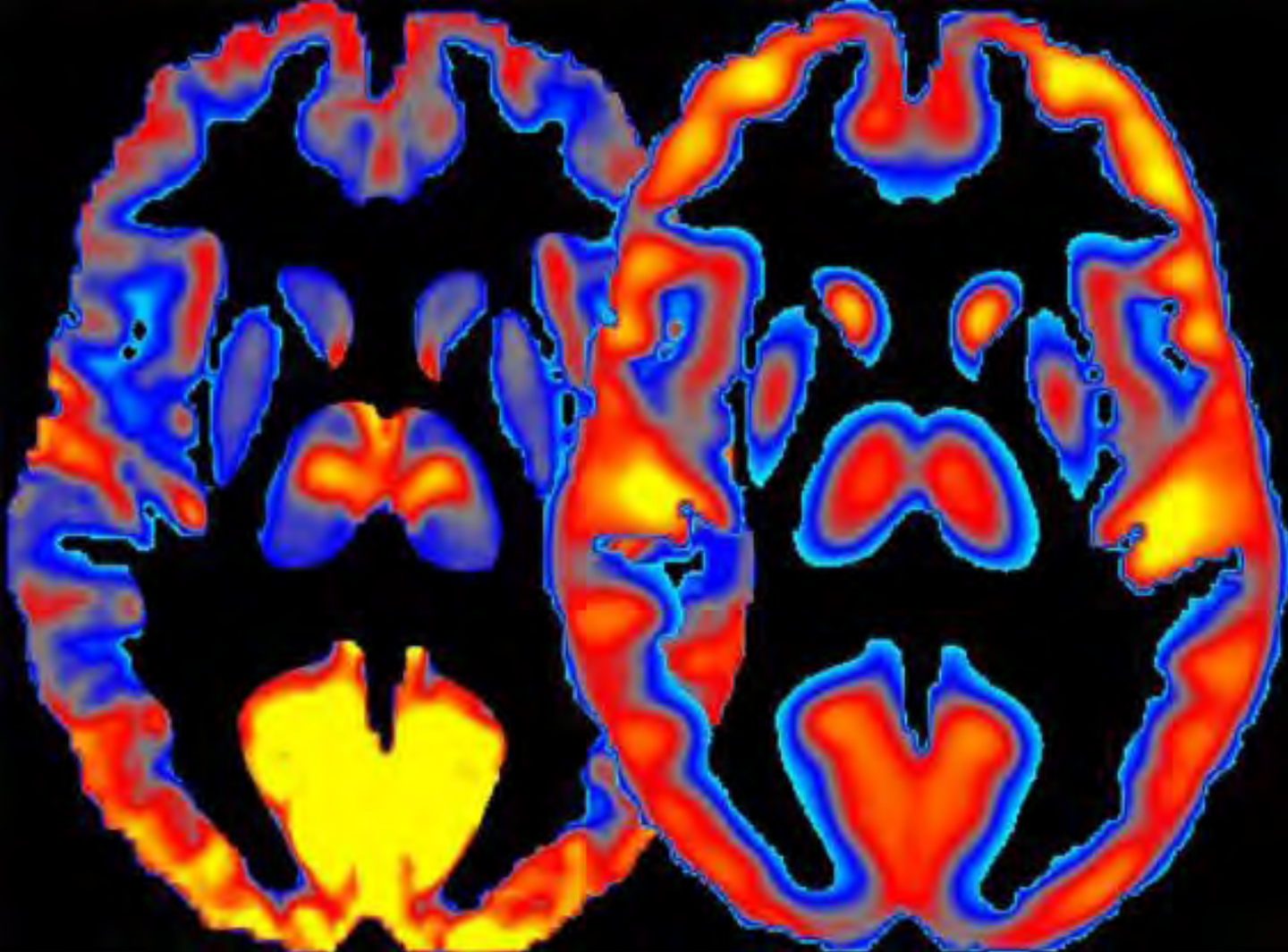
Health

Cancer control (proton & other ion; neutron Capture therapies; Radiopharmaceuticals; Sterilisation

Industry

Flow/process monitoring; Product fabrication (micro/nano-lithography) and finishing (curing, polymerization, etc.); non-destructive testing&characterisation





Fostering the use  
of nuclear  
medicine and  
diagnostic imaging  
for both diagnosis  
and therapy for  
diseases



A photograph of terraced rice fields on a hillside. The terraces are filled with golden-yellow rice, and the soil between them is dark brown. A person in a blue jacket and red hat stands on one of the terraces. In the distance, a small wooden hut with a thatched roof sits on a higher terrace. The background shows misty, rolling hills under a blue sky.

**2020 – 7.7 billion**  
**2050 – 10 billion?**

# In-house Food and Phytosanitary Irradiation

High-energy gamma rays from Cobalt-60



Low-energy electron beams and X-rays can be fitted on factory production lines

Current research includes a portable low-energy X-ray irradiator that could treat fruit in boxes



# Environment: Tackling marine plastics







**Industrial**  
efficiency and safety  
is enhanced

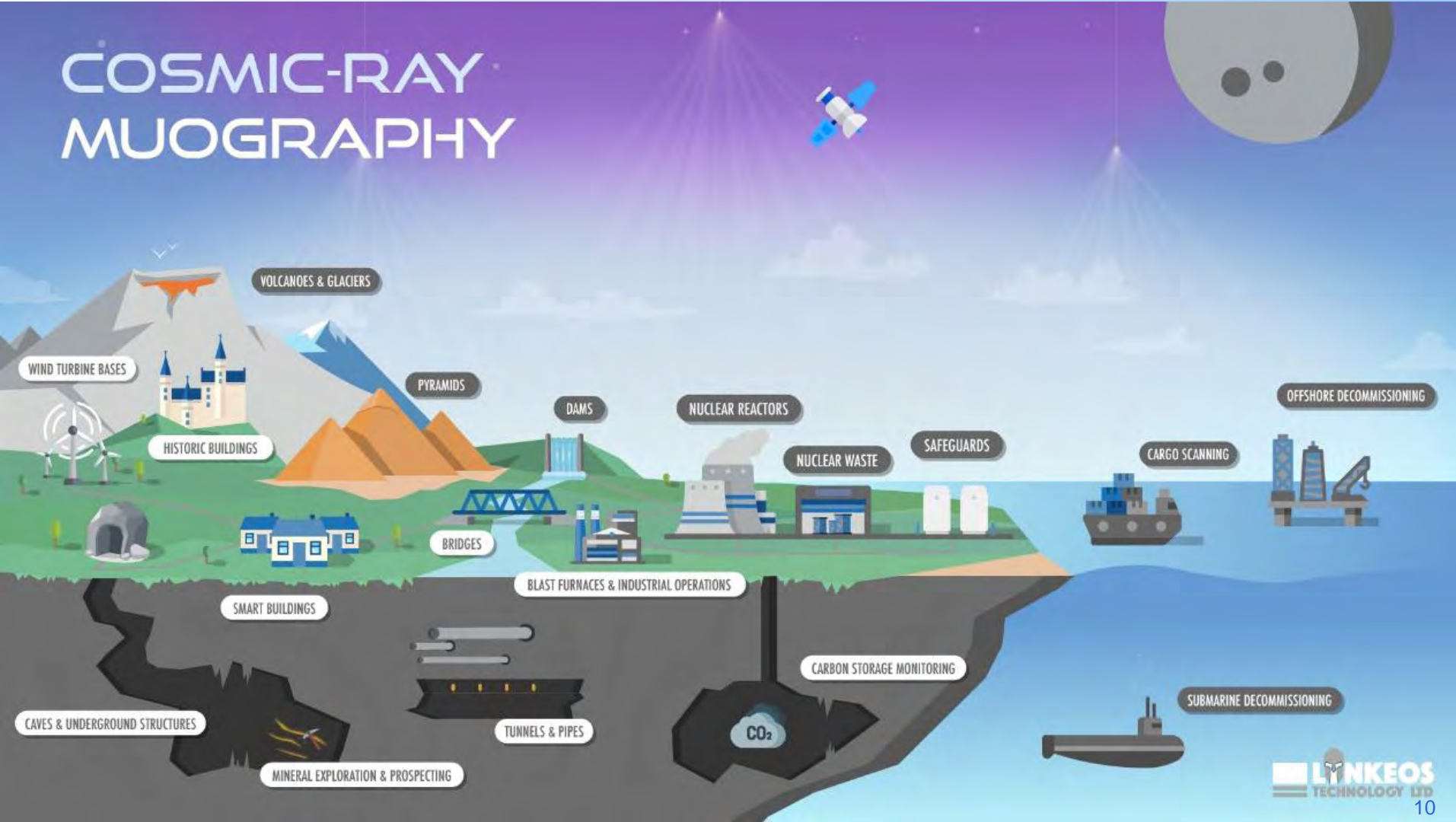




# **Optimizing industrial efficiency**

**Making our infrastructure safe**

# COSMIC-RAY MUOGRAPHY





7 AFFORDABLE AND  
CLEAN ENERGY



# Clean power generation

from nuclear and renewables can  
help mitigate climate change

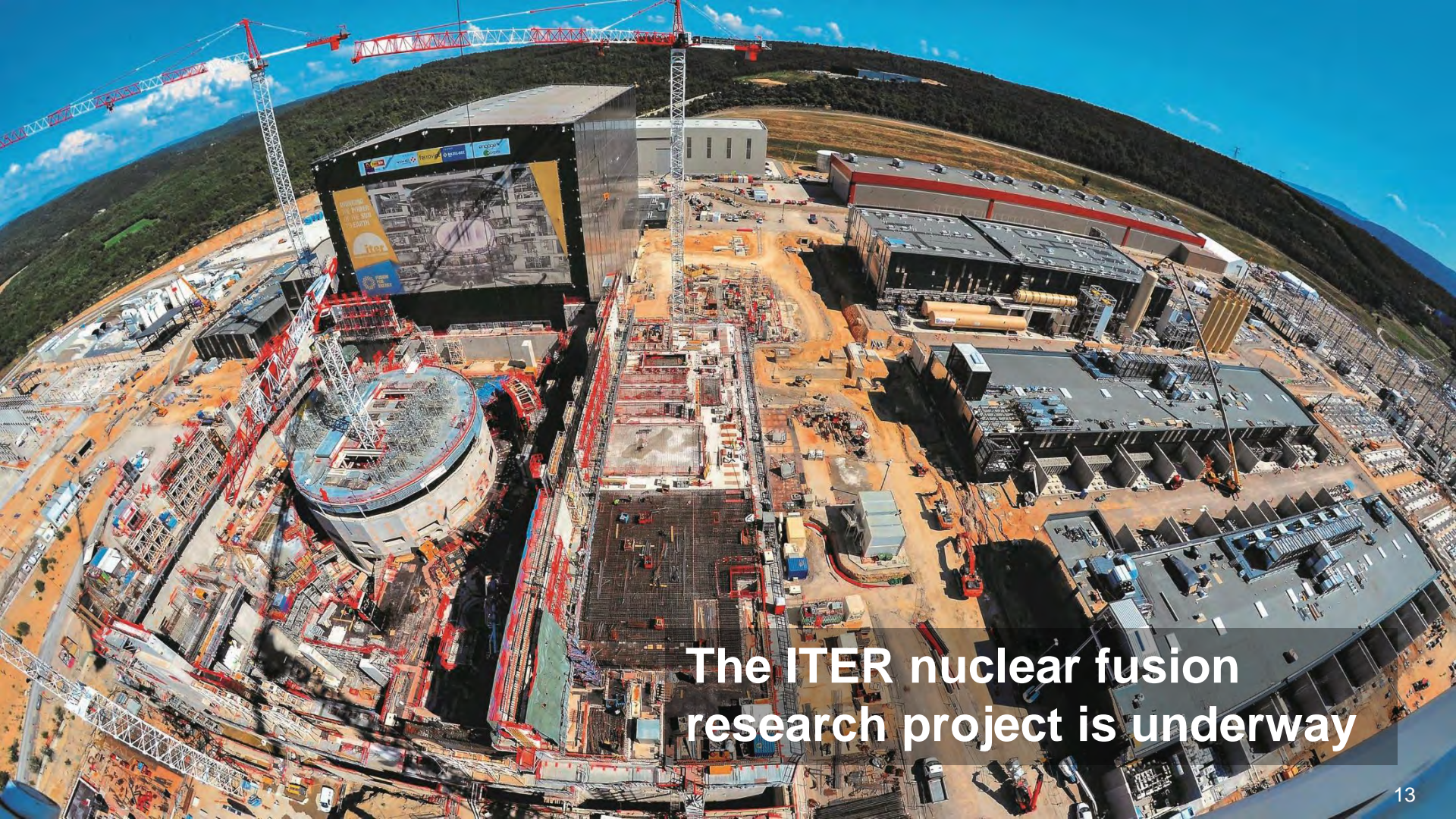
International Conference on

# **Climate Change and the Role of Nuclear Power**

**7–11 October 2019, Vienna, Austria**








The ITER nuclear fusion research project is underway



# Challenges





A photograph of two young people, a woman on the left and a man on the right, walking towards the camera on a paved path. They are both wearing white lab coats over light blue button-down shirts. The woman has her hair in braids and is wearing a colorful beaded necklace. The man has a black strap over his shoulder. In the background, there are trees, a building with a green roof, and other people walking away. A semi-transparent dark box with white text is overlaid on the bottom left of the image.

**Education and training key factors  
to promote nuclear technology**





**The IAEA encourages and assists research on development and the practical uses of atomic energy for peaceful purposes**



A close-up photograph of a male scientist with dark hair, wearing a white lab coat and a white surgical mask. He is wearing yellow nitrile gloves and is carefully holding a test tube with a pipette. In the foreground, there is a rack of several other test tubes, some containing yellow liquid. The background is a blurred laboratory environment with various equipment and shelves.

# **12 research laboratories**

**Water, food and agriculture,  
health, industry and environment**

A woman wearing a white lab coat and a red headwrap is working on a large industrial machine. She is focused on adjusting a component on a rotating platform. The machine has a large white panel on the left and various mechanical parts, including a green hose and a blue cable. The background shows a green wall and a black cabinet with the text "2500 LBS" on it. The overall scene is a laboratory or industrial setting.

Technology  
transfer





Communication and outreach are key



# Joint FAO/IAEA Programme since 1964





# Thank you

#atoms4life

