

Diversity and possibilities for Nuclear Technology

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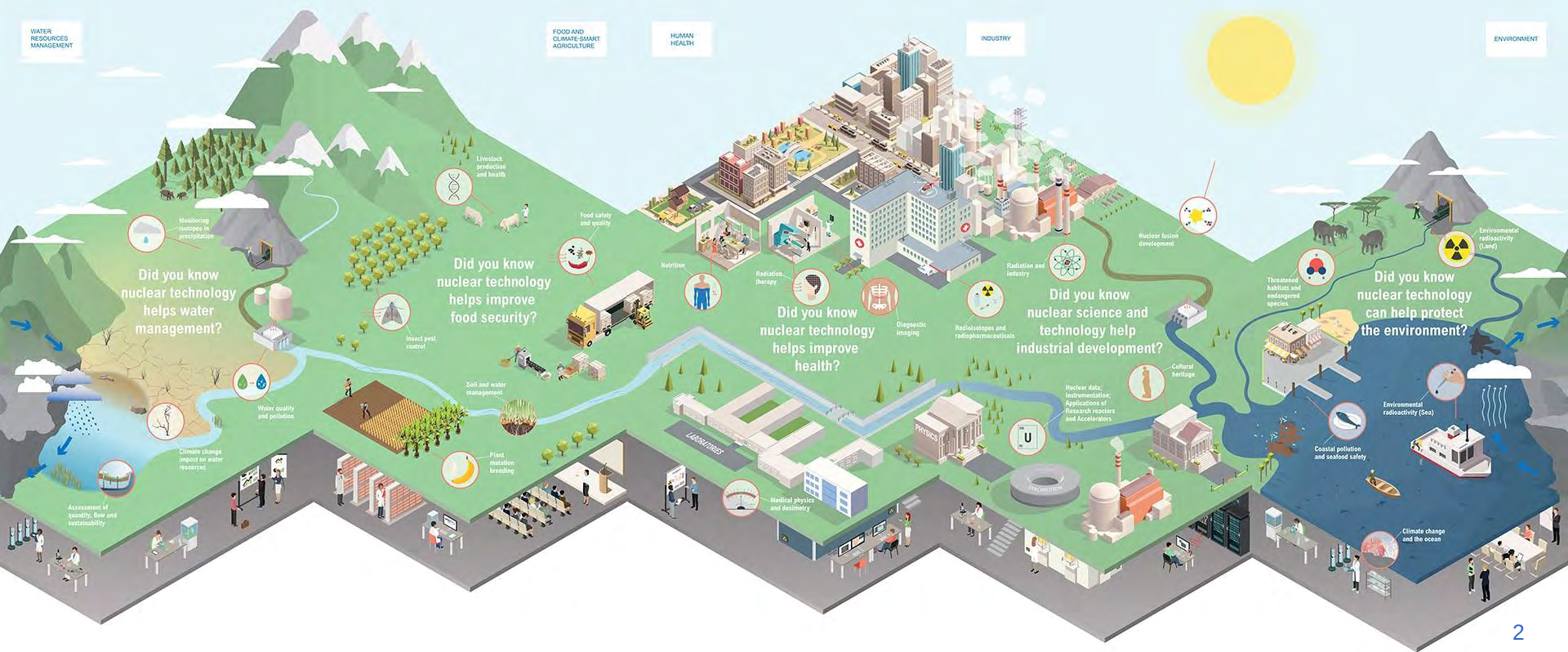
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The world of nuclear applications

www.iaea.org



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

Food,
environment

**Radiation
Technology
Applications
for
Development**

Energy

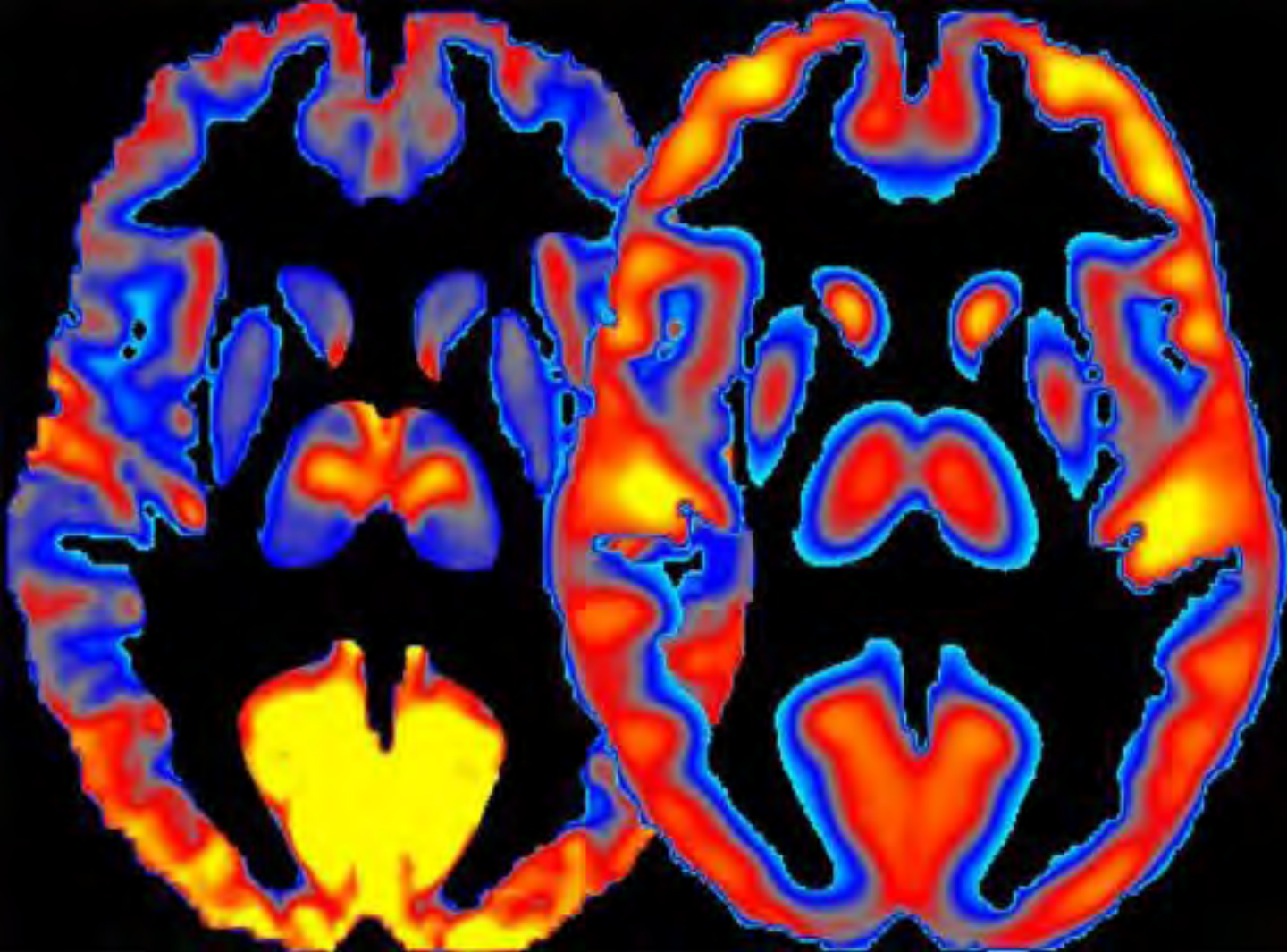
Materials damage and characterisation (fission, fusion, corrosion); Holistic R&D for fuel cycles (mining to waste and recycle)

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





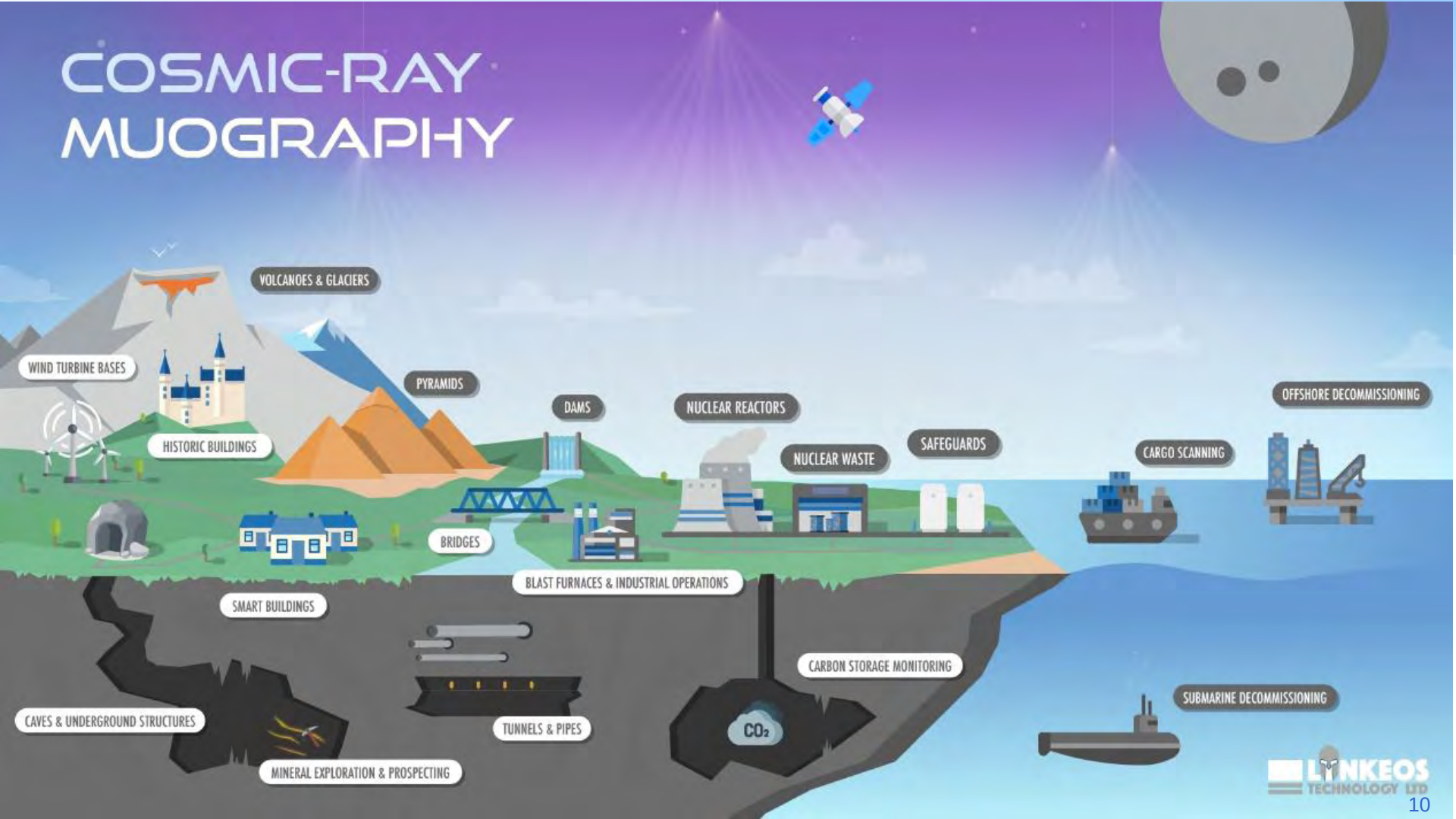
Industrial
efficiency and safety
is enhanced



Optimizing industrial efficiency

Making our infrastructure safe

COSMIC-RAY MUOGRAPHY



7 AFFORDABLE AND
CLEAN ENERGY



Clean power generation

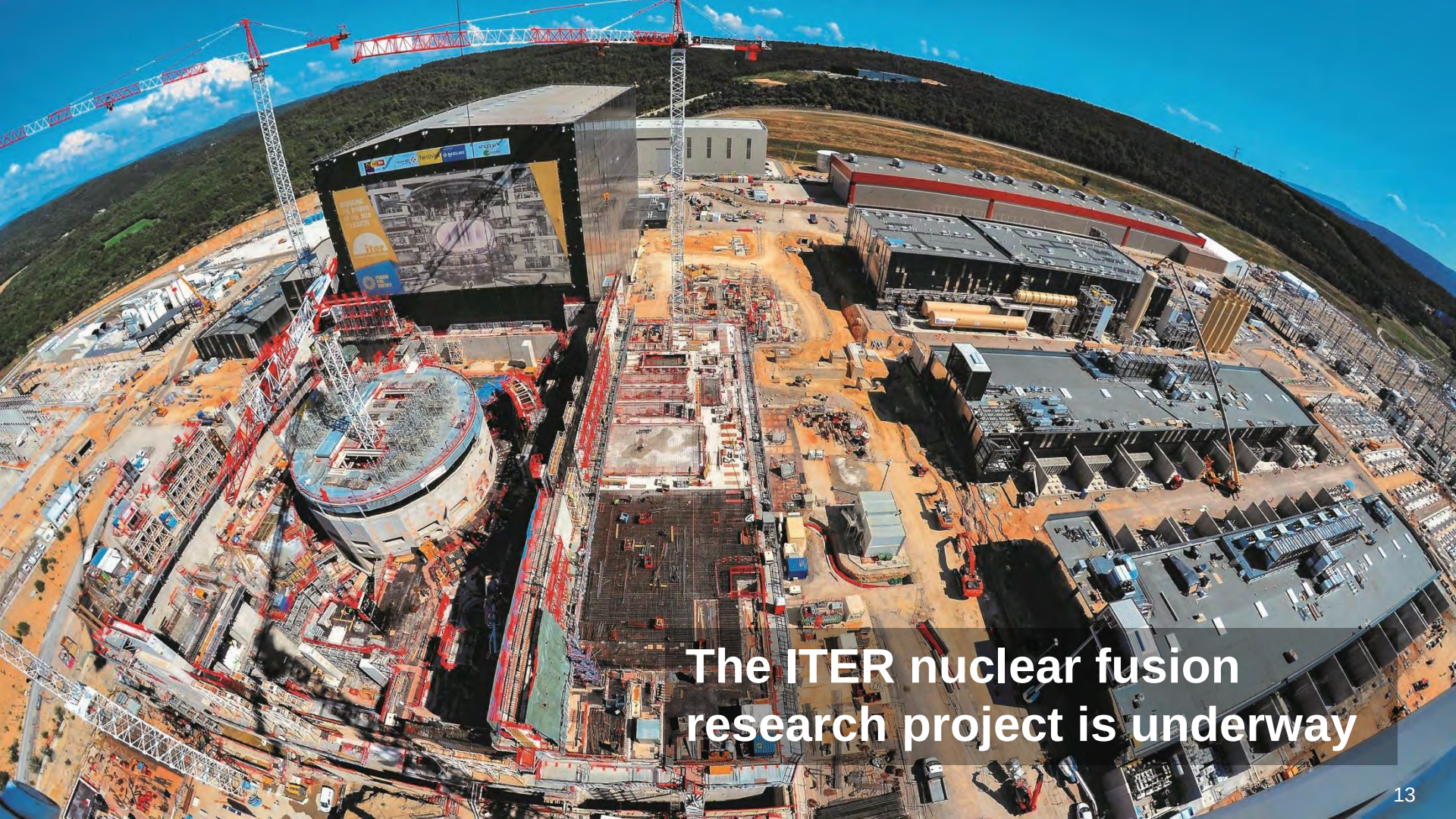
from nuclear and renewables can
help mitigate climate change

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 is also 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. The scene is outdoors on a campus.

**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 looking intently at a rack of test tubes. His right hand, wearing a yellow nitrile glove, is holding a pipette tip over one of the test tubes. The test tubes are arranged in a white rack and contain various colored liquids (yellow, orange, red). The background is a blurred laboratory setting with shelves and equipment. A semi-transparent dark blue box with white text is overlaid on the top right of the image.

12 research laboratories
Water, food and agriculture,
health, industry and environment

A woman wearing a white lab coat and a red headwrap is operating a large industrial machine in a laboratory. She is focused on her work, with her hands positioned on a component of the machine. The machine has a large yellow panel on the left and a circular base. Various cables and hoses are connected to the machine. In the background, there is a green wall and a black cabinet with the text "2500 LBS" on it. A small box with the text "N-007" is also visible on the right side of the machine.

Technology
transfer



Communication and outreach are key

Joint FAO/IAEA Programme since 1964



Thank you

#atoms4life

