

Radiation technology for a more prosperous and sustainable future

By Yukiya Amano, Director General, IAEA

Nuclear science and technology have a great deal to contribute to industrial development and economic growth. Their many benefits include improved materials, more effective industrial processes and a cleaner environment, contributing to the achievement of several of the United Nations Sustainable Development Goals, including goal 9 that aims at promoting industry, innovation and infrastructure. The IAEA helps its 168 Member States to improve their capabilities in the use of radiation science and technology in order to improve the quality of life of their people.

Radiation technology offers versatile tools that have an important role to play in support of sustainable development. It is often more cost-effective and environmentally friendly than traditional alternatives, requiring less energy and generating less waste. This is important for all countries, but particularly for those with limited resources.

This edition of the *IAEA Bulletin* highlights some of the ways in which radiation science and technology are being put to effective use throughout the world. You can read about how China, one of the world's leading textile producers, is using radiation technology to clean up wastewater from textile dyeing to make it safer for reuse (page 8), and how Brazil is using it to fight invasive insect pests to protect its cultural heritage (page 16).

Companies throughout the world are using nuclear techniques for quality control of products, processes and structures to boost production and strengthen safety. In Chile,

these tools are helping the mining sector to remain competitive (page 14). In Morocco, specialists use radiation to detect and correct flaws and inconsistencies in products and production processes (page 12), while in Myanmar, nuclear techniques are leading to increased efficiencies in the oil and gas sector, shipyards, railways and even amusement parks (page 6).

Many scientists and experts work together through IAEA coordinated research activities and scientific meetings to further improve radiation technologies and widen their use. This scientific work results in innovative solutions for tackling global challenges. A good example is the development of new biodegradable, 'active' packaging material to combat plastic pollution (page 10). IAEA Collaborating Centres play a key role in moving these scientific solutions outside laboratories and into industry and daily life (page 20). As a result of the work of the IAEA, many scientists gain the experience they need to become a source of expertise and guidance to other countries in how to apply radiation tools (page 18).

Science and technology are essential for development. If countries are to fully embrace the potential benefits of nuclear technology, a strong radiological safety and security framework is essential. The IAEA is committed to helping countries train and certify professionals and establish the necessary safety and security systems to ensure that these innovative technologies continue to be used for the benefit of humankind.



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(Photo: C. Brady/IAEA)



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