

# Ensuring the safe, secure and sustainable supply of uranium

By Yukiya Amano, Director General, IAEA

Uranium is the principal fuel used in nuclear power, a key low-carbon technology for generating electricity. There are presently 451 nuclear power reactors in operation in 30 countries, generating 11% of the world's electricity. Global nuclear power capacity is likely to increase by 2050, according to IAEA projections, although it remains to be seen whether this increase will be modest or substantial.

Estimates suggest that the world will have enough uranium for decades. But it is important that it is mined, produced and managed sustainably to avoid a shortfall. New generations of nuclear power reactors that — depending on the technology used — require less uranium, including small, medium sized or modular reactors, will have a pivotal role to play in the sustainable management of this vital resource.

It is up to each country to decide whether or not to use nuclear power or to mine uranium. The IAEA does not attempt to influence their decision. But if countries opt for nuclear power or decide to explore the possibility of producing uranium, our job is to help them do so safely, securely and sustainably. Nuclear safety and security are also national responsibilities; the IAEA's job is to bring countries together to agree on international standards and learn from each other's experience. Through our advisory services, missions and expert advice, we help national authorities to ensure that uranium, throughout its entire life cycle, is handled safely and securely.

This edition of the *IAEA Bulletin* discusses the status of the industry and its possible future. It outlines the assistance provided by the Agency to countries in uranium mining, milling and mine remediation. It provides

an overview of the economics of uranium production (page 4) and includes a case study on the development of a uranium mining project from scratch in Tanzania (page 6). You may also learn how the IAEA's Milestones Approach — a methodology that guides countries and organizations to work in a systematic way towards the introduction of nuclear power — is being applied to the production of uranium (page 10).

You can read about the details of a unique uranium deposit map recently launched by the IAEA (page 12). IAEA safeguards experts explain a less well-known side of their work in nuclear verification: safeguarding uranium mines (page 14). Transport experts from Australia and Malawi highlight the importance of ensuring safety and security in uranium transport (page 18). And we introduce the recently published Strategic Master Plan, which sets the framework for the remediation of former uranium mining sites in Central Asia (page 20). This edition of the *IAEA Bulletin* also features the two-billion-year-old Oklo rock, the world's only known natural nuclear reactor (page 26) and includes an informed overview of the future of uranium (page 24).

The International Symposium on Uranium Raw Material for the Nuclear Fuel Cycle: Exploration, Mining, Production, Supply and Demand, Economics and Environmental Issues brings together experts and interested parties from many fields to discuss the latest research and current issues related to all aspects of the front end of the nuclear fuel cycle.

I hope that this edition of the *IAEA Bulletin* will give you an insight into this less well-known, but fascinating and important area of the Agency's work.



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— Yukiya Amano,  
Director General, IAEA



(Photo: C. Brady/IAEA)



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(Photo Rosatom)