The Sustainable Development Goals and the IAEA

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The IAEA plays an active part in helping the international community with the achievement of the 17 Sustainable Development Goals (SDGs), adopted at the United Nations Sustainable Development Summit in New York in September 2015. These goals and their associated targets aim at stimulating action over the next 15 years in areas of critical importance for humanity and the planet. They balance the three dimensions of sustainable development: the economic, social and environmental.

The IAEA's support to countries in using nuclear and isotopic techniques contributes most of the SDGs. Here is a look at a selection of goals to which the IAEA contributes directly and how the IAEA achieves this.

Hunger and malnutrition are often rooted in food insecurity and agricultural challenges, which cause well-being to suffer and economies to grow strained. Through the IAEA, and its partnership with the Food and Agriculture Organization of the United Nations (FAO), several countries are improving food security and agriculture by using nuclear and isotopic techniques. They use them for a range of purposes, from conserving soil, water and crop resources, to protecting plants from insect pests and breeding new plant varieties with desirable characteristics. Others use nuclear techniques to protect the health of livestock and enhance their reproductive efficiency. As foodstuffs are prepared for consumption, nuclear techniques can be used to ensure superior quality, longer shelf life and increased safety of food.

In several Member States, nuclear tools are also used to study body composition and nutrition absorption to further research into, and improve nutrition programmes focused on, malnutrition in all forms, from undernutrition to obesity.

Achieving sustainable development is not possible if health suffers. In helping to achieve the SDG target of reducing deaths from non-communicable diseases, such as cancer, by one third, the IAEA is well-positioned to assist countries with developing comprehensive cancer control programmes and improving access to care, including establishing radiation medicine services and facilities, as well as educating and training specialized health professionals. These services rely on the IAEA's work on improving the availability and safe use of life-saving medical radioisotopes, and can be used to monitor and evaluate other health conditions, such as cardiovascular disease and tuberculosis.

When faced with diseases that can spread from animals to humans, such as the Ebola virus disease, a number of countries turn to the IAEA for support in using nuclear-derived diagnostic and monitoring tools for early disease detection to control their spread.

Water is essential to life. As populations grow and economies expand, access to clean and safe water is imperative. Isotopic techniques shed light on the age and quality of water. Some countries use this to implement integrated water resource management plans to sustainably use resources and to protect water and water-related ecosystems, while others use them to address scarcity, improve freshwater supplies and ensure their efficient use.

As society leaves its mark, water pollution is also a challenge. With IAEA support, some countries are now treating wastewater from industrial activities using radiation to reduce contaminants and improve water quality, making the water safer for reuse.

Access to clean, reliable and affordable energy is a precondition for sustainable economic growth and improved human well-being. The IAEA fosters the efficient and safe use of nuclear power by supporting existing and new nuclear programmes around the world, catalysing innovation and building capacity in energy planning and analysis as well as in nuclear

information and knowledge management. Many countries also work with the IAEA to safely and securely meet growing energy demands for development, while also improving energy security, reducing environmental and health effects from energy production and mitigating climate change.

Cutting-edge industrial technologies underpin the success of strong economies, in developed and developing countries alike. Nuclear science and technology, in particular, can make a major contribution to economic growth and have an important role to play in support of sustainable development. With the IAEA's help, some countries have increased the competitiveness of their industries by using nuclear technologies to carry out safety and quality tests in industry and by applying irradiation techniques to improve product durability. Irradiation also improves industrial sustainability by helping to lower the environmental impact of industrial production.

Nuclear science, including nuclear power, can play a significant role in both climate change mitigation and adaptation. The IAEA works to increase global awareness of the role nuclear power can and does play in relation to climate change and reducing greenhouse gas emissions. Nuclear power is one of the lowest-carbon technologies available to generate electricity. The IAEA also assists countries in using nuclear techniques to adapt to and mitigate the consequences of climate change through soil, water and crop resource management. Scientific research using nuclear tools, carried out with support from the IAEA, also contributes to science-based policies and actions to address the effects of the changing climate.

Oceans contain vast ecosystems brimming with marine life. They are a vital resource for people who rely on the sea for their livelihoods, day-to-day nutrition or both. To sustainably manage and protect oceans and, in turn, support coastal communities, many countries are using nuclear and isotopic techniques, with support from the IAEA, to better understand and monitor ocean health and marine phenomena such as ocean acidification and harmful algal blooms. National, regional and international laboratory networks, established by the IAEA, also offer several countries an avenue for scientific collaboration and provide key resources for analysing and monitoring marine contaminants and pollutants.

Desertification, degrading land and eroding soils can jeopardize people's lives and livelihoods. Isotopic techniques provide accurate assessments of soil erosion and erosion hot spots. These assessments can contribute to reversing land degradation and restoring soils, which also helps to halt the loss of biodiversity.

Through IAEA support, many countries use nuclear techniques to gather key data that helps to shape agricultural practices towards more sustainable use of land, which, in turn, leads to increased incomes. Such data also supports the improvement of conservation methods to protect and restore resources and ecosystems.

Partnerships help expand access to science and technology toward achieving the SDGs. Close collaboration between the IAEA, United Nations organizations, such as the FAO and the World Health Organization, and other international as well as civil society organizations help to maximize the contribution of the IAEA's support towards the achievement of countries' development priorities. Many countries work through regional and interregional cooperation projects and agreements with the IAEA to improve their knowledge, gain access to technology and equipment, and develop best practices to promote sustainable development, research and innovation. This framework also enables specialists from different countries to connect with IAEA partners, including a global network of regional resource institutions and collaborating centres. Many of these efforts are organized through the IAEA and its technical cooperation programme, specialized laboratories and coordinated research activities.