

Medium Term Strategy 2024–2029

Introduction

The Agency’s statutory objective is to “...seek to accelerate and enlarge the contribution of atomic energy to peace, health and prosperity throughout the world” and “...ensure, so far as it is able, that assistance provided by it or at its request or under its supervision or control is not used in such a way as to further any military purpose.” The Agency has pursued and adapted its programme of work within the framework of its Statute to meet the evolving needs and developmental goals of its Member States.

Over the 60 years of its existence, the Agency has firmly established itself as a unique multidisciplinary organization in the United Nations (UN) system, responsible for international activities concerned with the peaceful uses of nuclear energy. It simultaneously contributes to global peace and security, and the development aspirations of its Member States, including those related to energy security, human health, food security and safety, water resource management and industrial applications. The Agency has risen to the occasion and contributed to addressing many global challenges pertaining to nuclear safety, nuclear security and non-proliferation of nuclear weapons and has played a central role in establishing or strengthening international instruments in these areas. The Agency has responded to Member States’ requests for assistance related to verification tasks, including in connection with nuclear disarmament and arms control agreements. The Agency has also responded to Member States’ requests for assistance in overcoming the consequences of regional or global medical emergencies, natural disasters, industrial accidents, military conflict endangering nuclear safety, nuclear security and safeguards implementation. In this context, the Agency’s support included running its largest assistance to help Member States fight the COVID-19 pandemic and assistance to Ukraine to ensure safety and security, as well as the implementation of safeguards verifications at the nuclear installations.

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The Medium Term Strategy has been prepared through a joint consultation process among Member States and the Secretariat. It covers a period of six years from 2024 to 2029. In line with the Agency’s Statute and subject to the decisions and resolutions of the Agency’s Policy-Making Organs, which are the basis and the guidance for the Agency’s activities, the Medium Term Strategy serves as a strategic direction and roadmap for the Secretariat to prepare the Agency’s programme and budget during the period covered by it, by identifying priorities among and within its programmes for three biennia for the achievement of the Agency’s statutory objectives in an evolving international environment. The Medium Term Strategy 2024–2029 draws upon the Medium Term Strategy 2018–2023 and may be updated, if deemed necessary by the Board of Governors, adapting to new developments and evolving needs and priorities of Member States.

In fulfilling the Agency’s statutory responsibilities, the Medium Term Strategy 2024–2029 identifies strategic objectives that are cross-cutting in nature and that will be attained through a combination of the Agency’s six Major Programmes. Several strategic enablers will continue to be applied by the Secretariat across all of the Agency’s programmes in order to facilitate the achievement of these strategic objectives.

Operating environment

In developing this Medium Term Strategy, technological trends, emerging needs, global threats and the political, economic and social background have been taken into account. These external factors, which may have an impact on the Agency's work during the period 2024–2029, can be summarized as follows:

According to the Sustainable Development Report 2021, the COVID-19 pandemic is a setback for sustainable development everywhere. The economic, social, and environmental dimensions of sustainable development, as laid out in the Sustainable Development Goals (SDGs) adopted in 2015, have been impacted by the pandemic. The report further notes that while the pandemic is a setback for sustainable development, the SDGs along with the 2030 Agenda and the 2015 Paris Climate Agreement provide the right compass for "building forward better". The report further emphasises that international commitments, for instance towards climate neutrality, must be rapidly accompanied by transformative actions and investments.

The 17 SDGs delineate global challenges of critical importance in the context of a growing world population, which is expected to reach 9.6 billion by 2050, increasing industrialization and changing environment. In relation to the climate neutrality, at the 2021 Glasgow Climate change Conference, Parties were urged to come forward with further enhanced Nationally Determined Contributions (NDCs) in 2022, with 2030 targets aligned with the temperature goals of the Paris Agreement which envisages ambitious and urgent efforts to reduce greenhouse gas (GHG) emissions across all activities and sectors as well as adapt to climate change. Global food production should increase by 70% by 2050 in order to meet the forecasted demand, mostly coming from developing countries. Non-communicable diseases such as cancer are rising at an alarming rate, with the greatest increases in low and middle income countries. There are acute water shortages in many parts of the world and estimates show that, if current practices continue, the world will face a 40% shortfall between demand and supply of water by 2030.

The SDGs recognize the role of science, technology and innovation as essential enablers for development and place the priority on partnerships as a critical means of implementation. Nuclear technologies are being used to address many of these development challenges, including those concerning poverty and hunger, human health, energy, and climate change. Due to the growing number of Member States interested in peaceful applications of nuclear technologies, it is expected that there will continue to be an increased demand for the Agency's assistance and services, among others, through the technical cooperation programme in support of their efforts to achieve the SDGs. The technical cooperation programme will continue to be a major vehicle for executing the statutory functions of the Agency in facilitating the development of nuclear technology and know-how and their transfer to and among Member States for peaceful uses.

Global energy demand is expected to continue to rise, in particular in developing countries, highlighting the need for States to have a secure, clean, affordable and diverse low carbon energy supply, with the need to lower their dependency on fossil fuels. As a low carbon source of energy for sustainable development, nuclear power is expected to continue to play an important role in the energy mix of many countries around the world, for energy security, climate change mitigation and long term economic development. With more countries starting operation of their first nuclear power plants, as well as significant expansion in some countries in the years covered by this Medium Term Strategy, total global nuclear capacity is expected to grow despite expected shutdowns of several nuclear power plants during this period. This will increase demand for relevant Agency services, such as review of the national nuclear infrastructure, design and site assessments, review of regulatory infrastructure and nuclear power plant operation.

Interest in the long term operation of nuclear power plants, advanced nuclear reactors, including small modular reactors (SMR), non-electric applications of nuclear energy, hybrid nuclear-renewables energy systems, and closed fuel cycle technology is expected to continue growing with a view to contributing to expand the role of nuclear power in the clean energy transition, the SMR model being well adapted for countries with medium size electrical networks. Thanks to continuous R&D efforts and a growing flow of public and private capital investments, fusion technology for energy production is also gathering momentum towards its future deployment.

Operators and regulators are preparing and implementing steps towards long term operation of the existing fleet of nuclear power plants and research reactors, including by addressing human resource and knowledge management challenges due to experienced staff transitioning to retirement. Some countries, as per their national priorities and policies, have decided to phase out nuclear power and several nuclear facilities are expected to reach the end of their operating lifetime and be permanently shut down. Licensing and construction of the first deep geological repositories — the internationally agreed long term solution for high level radioactive waste — are now a reality. Demand for support for decommissioning and spent fuel management activities is expected to grow.

More countries are indicating their interest in nuclear science and applications. The use of multidisciplinary nuclear and radiation technologies is expected to continue growing rapidly, in particular in applications for food security, environmental protection, human health, water management and industry. The support expected from the Agency to facilitate the safe, secure and sustainable operation of research reactors and accelerators for research and development (R&D), as well as for radioisotope production, is expected to grow.

The pace of technological developments continues to speed up. Artificial intelligence, machine learning and digital learning offer potential to accelerate technological development in nuclear fields, and the sector is making good progress in seizing on those opportunities. Applied to nuclear science, these technologies have the potential to advance cancer staging in nuclear medicine and cancer treatment or to help protect global water resources from overexploitation and contamination. In the area of nuclear energy, these technologies can enhance the development and deployment of nuclear power and its electric and non-electric applications as well as to accelerate progress towards the realization of fusion energy production. At the same time, the Agency needs to keep abreast of challenges and opportunities presented by emerging technologies, so as to ensure the continued effectiveness of safeguards.

The demand for quality healthcare for non-communicable and infectious diseases will increase the need for diagnostics imaging and radiological treatments. The number of medical procedures using ionizing radiation is expected to continue to grow, and the exposure from medical procedures will continue to be the most significant man-made source of exposure to the global population. A more recently observed trend is the rising number of patients being subject to recurrent imaging procedures, leading to significant cumulative radiation doses to these individual patients over a limited time-span. This will increase the demand for more Agency services in the area of radiation safety of patients and medical workers. The accumulation of disused sources and associated transportation will require adequate and strengthened safety and security measures globally. While the global nuclear safety framework has been strengthened, all countries have a common interest in, and are continuously making efforts to improve and strengthen nuclear safety, emergency preparedness and radiation protection of people and the environment worldwide, acting upon the lessons learned from past nuclear accidents.

Concerns exist over potential threats from intentional unauthorized acts involving or directed at nuclear material, other radioactive material, associated facilities or associated activities. In an increasingly globalized world, with constantly growing nuclear trade and cooperation, physical protection remains a key element of nuclear security. The Agency has to enhance its technical capabilities to keep abreast

of scientific and technical innovations with a view to confronting current and evolving challenges and risks to nuclear security, including computer security. Strengthening and improving cooperation in, and the coordination of, international efforts in the field of nuclear security will continue to remain important for the international community.

In an ever-changing international security environment, nuclear non-proliferation and disarmament is expected to remain high on the international community's agenda. The increase in nuclear activities and nuclear cooperation around the globe and among States embarking on nuclear power results in a growing amount of nuclear material and facilities under Agency safeguards, as well as increasing need for safeguards capacity building support for States. With nuclear technology advancing, new and more complex facilities such as geological repositories and the next generation of reactors, including modular and transportable reactors, will be placed under Agency safeguards, requiring new safeguards approaches prepared in consultations with States for new types of facilities and the promotion of incorporation of safeguards requirements into the design of new facilities ('safeguards by design'). The number of spent fuel transfers is also expected to increase, requiring more efficient approaches. The changing security context involving conflicts and the rise of non-State actors may hinder the Agency's ability to conduct in-field verification activities in some States.

The Agency's experience during the pandemic has led to the implementation of several innovative measures that have been added to its delivery mechanisms repertoire. These measures will continue to be suitably integrated to improve the efficiency and effectiveness of its programme delivery gained through the lockdowns. The novel ways of working to deliver on its mandate have helped the Agency strengthen its response to Member States' needs and programme delivery during these challenging times. The Agency will continue to operate in an evolving and unpredictable environment and should remain proactive, quickly adapting to the challenging new circumstances to continue carrying out its functions.

Financial difficulties in many Member States may continue into the period of this Medium Term Strategy. At the same time, the demand for Agency services will continue to grow owing to, inter alia, growing membership, enhanced interest of Member States in the peaceful uses of nuclear energy, the need to strengthen and continuously maintain a robust and sustainable safety and security infrastructure, and the growing need for nuclear verification activities. The Agency is constantly called upon to do more and to respond rapidly to urgent issues. The Agency will continue to face an increasingly competitive environment for talent that presents likely challenges for recruiting and retaining highly qualified staff while paying due consideration and attention to balanced geographical representation and to gender equality.

With technological developments come both opportunities and challenges. Advanced information technology (IT) helps the Agency to further support Member States in making use of nuclear-related data, as well as optimize internal processes, and streamline and improve its operations. Greater reliance on IT, however, exposes the Agency to rapidly growing and more complex cybersecurity threats, posing a challenge to continuity of operations and maintaining the security of the sensitive information in the Agency's custody.

The advancement of nuclear law is key to promote, maintain and respond to new challenges across the nuclear field in the coming years. Thereby, the legal advice and support that the Agency upon their request provides to Member States is of great value and will have to be maintained for the benefit of developing national legislation that reflects IAEA standards and guidance, as well as to support the consistent implementation of the treaties under the Agency's auspice

Capacity building in all the above areas is expected to continue to be a cross-cutting issue of particular interest for the Agency. New developments and technological breakthroughs, evolving needs and

priorities of Member States as well as other unanticipated events may necessitate adjustments between 2024-2029. The Agency will position itself to seize the advantages of positive opportunities and minimize the adverse consequences of unexpected developments.

Strategic Objectives

The Medium Term Strategy 2024–2029 sets out the following six strategic objectives, which will be pursued across all programmes in a coordinated and mutually reinforcing, as well as an effective and efficient manner. It will contribute to meeting current and evolving needs and priorities of Member States, including achievement of the SDGs, and global peace and security:

A. Facilitating access to and support development of nuclear power and other nuclear technologies

- Support Member States in all aspects and phases of nuclear programmes, including their related fuel cycles and fuel cycle facilities, in spent fuel and radioactive waste management, and in advancing new technologies conforming to high levels of safety, emergency preparedness and response, security and non-proliferation and environmental protection.

B. Strengthening promotion and development of nuclear science, technology, and applications

- Support Member States in increasing their capacities for the use of nuclear science, technology and applications as a tool for achieving their scientific, technological and sustainable development-related goals in areas such as health, conservation and sustainable use of biodiversity, food and agriculture, environment, climate change, water management, and industry.

C. Improving nuclear safety and security

- Support Member States in developing robust and sustainable nuclear safety and security infrastructures, and in building capacity for the operation of facilities from the design phase to decommissioning, the management of spent fuel and radioactive waste, and in preparedness and response for nuclear and radiological emergencies.

D. Providing effective technical cooperation

- Plan and implement a need based, responsive technical cooperation programme, further enhance the efficiency and effectiveness of the programme, and strengthen technical capacities of Member States in the peaceful and safe uses of nuclear technologies for sustainable development.

E. Delivering effective and efficient Agency safeguards

- Deter the proliferation of nuclear weapons by detecting early the misuse of nuclear material or technology and by providing credible assurances that States are honouring their safeguards obligations, and assist with other verification tasks as requested by States and approved by the Board of Governors.

F. Providing effective, efficient and innovative management and sound programme and budget planning

- Provide overarching guidance, direction and support in relation to the planning, efficient and effective implementation of the Agency's programme.

Strategic enablers

To achieve the above strategic objectives, the Agency should be equipped with sufficient, adequate and predictable resources; a competent, engaged and high performing workforce; and robust, fit-for purpose and secure infrastructure. To maximize the benefit from these resources, the following strategic enablers will continue to be applied by the Secretariat across all of the Agency's programmes according to the specific nature of each strategic objective: (1) synergy and coordination; (2) results based management; (3) operational excellence; (4) partnerships and resource mobilization; (5) communication and stakeholder engagement; (6) technology and innovation; and (7) science based approach.

The Secretariat will avoid duplication, maximize synergies and continually make efforts to better utilize internal resources and increase efficiencies and effectiveness in all of the Agency's programmes in order to meet the Agency's strategic objectives. In this regard, through the interdepartmental coordination mechanisms that includes the Agency-wide SMR Platform and the Nuclear Power Support Group, the Agency will continue providing efficient and coordinated support to Member States in their early development and deployment of SMR and for establishing or expanding nuclear programme.

Results based management, as an established mechanism, will continue to be key to improving management and enhancing performance. Corporate knowledge management and its related activities remain part of results based and quality management activities, and ultimately enhance the effectiveness and efficiency of programme delivery. Effective risk management will continue to be implemented to identify and mitigate potential events which might adversely affect the Agency's ability to fulfil its mandate, meet its strategic objectives, implement its plans or achieve its intended results. While making continued efforts to improve efficiencies and effectiveness, the Agency will remain an international organization of excellence and constantly ensure the high quality of its services.

Building upon the Agency's Strategic Guidelines on Partnerships and Resource Mobilization, the Agency will increase its efforts to identify opportunities to further enhance its partnerships with Member States and their institutions, as well as with other international and regional organizations. The Agency will also intensify work to establish and facilitate new partnerships with all relevant partners and traditional and non-traditional donors, including from the private sector, in support of the Agency's activities. Special emphasis will be placed on maintaining and further enhancing the capacities for delivery of the Agency's programme and its priority goals, thus making an important contribution to the achievement of the SDGs by Member States. The Agency will effectively and efficiently share experiences, lessons learned and good practices.

Efforts will be made to increase global knowledge and understanding of nuclear issues and the Agency's mission, activities and achievements through both media and direct communication with the public. The Agency will also further strengthen efforts to support Member States, upon their request, in the areas of stakeholder engagement.

The Agency will keep abreast of technological developments which includes the advancement in nuclear power and other nuclear and radiation technologies. It will also consider opportunities and risks for leveraging technologies and innovations such as artificial intelligence, machine learning and data analytics for practical applications. As a science and technology-based organization, the Agency will continue to follow a science-based and evidence-based approach.

Given the state of the global economy and the growing gap between demand and resources, the Secretariat, following on the Director General's vision, has been developing cross departmental integrated projects within the approved programmatic domain for the Agency to make greater impact in addressing global challenges. These projects will continue to be implemented through enhanced inhouse coordination and by mobilizing additional resources outside the Agency's traditional framework. Meaningful efforts will continue to be made to enlarge donor base by forging new

partnerships, including with development and regional banks, the private sector, interested foundations and others, to support such initiatives.

In this regard, the Agency will be implementing a number of initiatives, that include the following:

- Zoonotic Disease Integrated Action initiative, ZODIAC, together with the Agency's partners such as the Food and Agriculture Organization of the United Nations (FAO), the World Organization for Animal Health (OIE), the World Health Organization (WHO) and other relevant initiatives will continue to strengthen regional and national capabilities for surveillance of and timely response to zoonotic disease outbreaks, at the environment-animal-human interface to help respond to outbreaks of zoonotic diseases.
- NUTEC Plastics is an Agency's initiative that contributes to addressing the plastics pollution problem using nuclear and related techniques. The initiative is expected to contribute to addressing the plastics pollution problem focussing on plastic recycling using radiation technology and marine monitoring of microplastics using isotopic tracing techniques. The initiative seeks to engage and expand the cooperation with Member States, partners, industry, and civil society.
- The Rays of Hope initiative, Cancer care for all, envisages integrating the Agency resources and capacity with that of its partners in government, nongovernmental organizations, financial institutions and private sectors to provide a comprehensive support to Member States in building the radiation medicine infrastructure including procuring the equipment, providing training and supporting innovation.

A. Facilitating access to and support development of nuclear power and other nuclear technologies

Nuclear power continues to receive growing interest as a number of countries pursue it as a reliable, sustainable and low carbon source of energy and an enabler of the broader clean transition of the power sector and beyond. The Agency's projections for nuclear power continue to show growth, as anticipated new capacity exceeds that which is expected to be removed from service and subsequently decommissioned. A number of countries are also expected to commission their first nuclear power reactor, often as a part of their climate change mitigation efforts under the Paris Agreement and, at the same time, to secure access to a reliable source of low-carbon energy.

In response to rising interest in nuclear power programmes and the associated fuel cycles, the Agency facilitates access of Member States to, and sustainable use of such technology through capacity building, infrastructure development, the dissemination of knowledge and technical information, and technology advancements. Experience based planning, informed decision-making, including an understanding of long term responsibilities, and increased cooperation will allow Member States to deploy the full potential of nuclear power to support sustainable socio-economic development and combat climate change. Within this context and upon request, the Agency will assist Member States planning to embark on or expand nuclear power programmes, to build infrastructure and strengthen human resource development. The assistance will be focused on building capacities in nuclear science, technology, energy system analysis, technology evaluations, nuclear fuel cycle, spent fuel and radioactive waste management, and long term planning, including decommissioning, to improve the sustainability of nuclear power and ensure the continued availability of competent personnel nationally and globally in accordance with international standards and good practices. Assistance will be

strengthened to support Member States' capability to engage with their relevant stakeholders, including the public, and for the dissemination of factual information on nuclear power.

In the case of SMRs the Agency will continue to address Member States' request for an international effort for standardisation, harmonisation of regulatory and industrial approaches, and other specific issues linked with their unique features, including micro or transportable reactors. The Agency will continue to assist Member States to improve the performance and safety of nuclear facilities at all stages of the life cycle, including long term operation and end of operating lifetime, through the development of methodologies and guidance documents for planning, designing and implementing nuclear knowledge management and human resource management programmes, as well as through the exchange of information and good practices. The Agency will continue to assist Member States in the development and enhancement of technology and infrastructure, including in areas such as plant life management; spent fuel and radioactive waste management, covering disposal; decommissioning; and remediation of contaminated sites, and legacy sites.

The Agency will continue to assist through all stages of research reactor life cycles to improve operational performance, enable effective maintenance and ageing management, increase utilization, enhance safety and security, reduce proliferation risks, foster greater availability of facilities through international cooperation, and address challenges such as the sustainable availability of fresh fuel, long term options for the disposition of spent research reactor fuel and, when requested to do so, the transition away from the use of high enriched uranium (HEU) where technically and economically feasible.

The Agency will also continue to provide objective and reliable information on atomic, molecular and nuclear data, as well as facilitate safe, effective and sustainable operation of nuclear science facilities.

The Agency will continue to assist all Member States and in particular those Member States that do not have a nuclear program in developing and implementing waste management (including Disused Sealed Radioactive sources), environmental remediation (including NORM) and decommissioning of small facilities.

The Agency will promote international collaboration among interested Member States in R&D on the beneficial uses of nuclear technologies, including nuclear power, and nuclear sciences by providing assistance through coordinated research projects, networks and communities of practice. The Agency will also promote and support education and training in nuclear energy to enable greater use of nuclear technology in Member States by developing high standard curricula and harmonized or cooperative nuclear education programmes, including knowledge management portals and e-learning materials and products, as well as by assisting interested Member States in applying research reactors and particle accelerators as a practical component of higher education or industrial training programmes. Member States can make increased use of shared platforms to access international training materials and share educational resources. Through training programmes for young professionals, the next generation nuclear workforce will gain a broad awareness of the main issues related to nuclear energy development and will be encouraged to reap the benefits of shared learning with peers across the world.

The Agency will continue to encourage and facilitate the exchange of scientific and technical information which contributes to enhancing operational performance and nuclear safety and security. Peer reviews and advisory services will be further developed to increase their efficiency and effectiveness, thus facilitating access to nuclear power and contributing to the improvement of nuclear safety and security worldwide.

The Agency will continue to support international cooperation among interested Member States in innovations in all areas of nuclear power, in particular related to advanced nuclear reactors, SMRs and nuclear fusion energy; assist in identifying and implementing promising areas for R&D to improve safety, economics, performance and reliability; as well as to expand and improve applications of current

and innovative nuclear power technologies beyond electricity and in synergy with renewable energy sources (hybrid nuclear-renewable energy systems) in order to achieve improved prospects for near- and long-term deployment of nuclear power. The Agency will continue to disseminate information on, and support the development of, advanced nuclear reactors with innovative designs, including water cooled, small modular, high temperature and fast neutron reactors and their fuel cycles; and nuclear fusion for energy production; and it will also promote non-electric applications of nuclear power, hybrid nuclear-renewable energy systems, and nuclear hydrogen productions, including the analysis and assessment of such technologies.

To further promote and support the contribution of technologies, including that of nuclear power, to sustainable development and climate change mitigation, the Agency will continue to disseminate, through its broad set of databases and information systems, objective, authoritative, and reliable information widely to policymakers, the public and experts to help them make informed decisions.

The Agency will stand ready, upon request, to facilitate the supply of low enriched uranium (LEU) through existing voluntary mechanisms such as the LEU reserve in Angarsk, Russian Federation, and the IAEA LEU Bank in Kazakhstan, in accordance with the eligibility criteria described in the Board of Governors documents relevant to this issue. Discussion may be conducted among interested Member States on the development of multilateral approaches to the nuclear fuel cycle, including possible schemes dealing with the back end of the fuel cycle through inclusive and transparent processes while respecting the rights of each Member State to develop national capabilities.

B. Strengthening promotion and development of nuclear science, technology and applications

Member States continue to face major sustainable development challenges, including ensuring food security, improving health care, managing water resources, protecting the environment, advancing green technologies and adapting to climate change, all while reducing pollution, preserving biodiversity and ecosystem services, and increasing industrial applications. It is anticipated that Member States' demand for Agency support and assistance in the efficient use of nuclear science, technology and applications to address these challenges and support sustainable socio-economic development will continue to increase.

The Agency will continue to focus on addressing and responding to Member States' needs, facilitating the use of nuclear technologies in Member States to support the detection and monitoring of animal and zoonotic diseases, improved soil management and conservation, livestock production, insect pest control, crop production and food safety, and thereby contribute to global food security and sustainable agricultural production through the Joint FAO/IAEA Centre of Nuclear Techniques in Food and Agriculture. The Agency will continue to draw benefit from the cooperation with the FAO and its offices in the field.

Nuclear techniques have a significant role to play in the assessment and treatment of non-communicable diseases, such as cancer and cardiovascular diseases, but also in infectious diseases and neurological disorders. The Agency will continue to improve human health by supporting the use of nuclear techniques and related quality assurance programmes in nutrition, as well as the safe and effective use of radiation medicine for the diagnosis and treatment of patients, including through education and training of practitioners. Partnerships with the WHO, professional bodies, and other organizations will continue to play a crucial role in the implementation of Agency's activities.

Water security underpins the achievement of the SDGs. There are acute water shortages in many parts of the world. The Agency will assist Member States in the use of isotopic techniques for water resources mapping and assessment to enhance water security. This important information about water resources at the national and regional levels provides the basis for sound policymaking and sustainable water resources management. The focus will continue to be on supporting and leveraging isotope hydrology capacity that already exists in Member States and on working with growing hydrology networks.

Anthropogenic environmental phenomena pose a threat to sustainable global development. Measuring, monitoring and mitigating environmental impacts has become a priority for many Member States. The Agency will continue facilitating the utilization of isotopes and nuclear techniques by Member States to better understand and monitor key environmental challenges, including: the global uptake by the oceans of carbon dioxide; the acidification effects on marine ecosystems; and the presence of microplastics and their impact on marine life. The Agency will also continue to support Member States on climate adaptation through research and development; promoting the conservation and sustainable use of biodiversity; and climate smart agriculture, especially with regards to plant breeding, agricultural soil and water management, livestock production and control of animal and plant diseases. In addition, plastic pollution in the marine environment is becoming an increasing concern in many Member States specially for its impact on food security. The Agency will continue to rely on its network of partners, notably the United Nations Environment Programme's Regional Seas Programme, and to reach out to the relevant environmental authorities.

The Agency will continue supporting the building of capacities in the areas of production of radioisotopes and radiopharmaceuticals, and applications of radiation technologies. Medical radioisotopes are used in approximately 40 million medical diagnostic imaging procedures per year worldwide enabling accurate and early detection and treatment of diseases in a non-invasive manner. The Agency will continue providing to interested Member States, upon request, technical assistance regarding medical isotope production, including the utilization of non-HEU based methods, and will work with Member States to support a reliable global supply of medical radioisotopes.

As populations grow, countries will need to increase industrial development to boost production and meet demand for products and services in sustainable ways. Nuclear and radiation technologies, including accelerator applications, have a unique role to play in increasing the efficiency of industrial processes, and reducing the waste, including plastic waste and by-products they produce. The Agency will continue to explore the use of accelerators for various radiation technology applications and to promote applications of advanced nuclear/radiation techniques for industrial development including the recycling of plastic waste.

In addition to supporting the use of nuclear techniques for practical applications, the Agency will support the building of nuclear science competencies in Member States which chose to use these techniques. The Agency will also continue to provide an essential forum for disseminating information on technological developments, with a focus on online tools to reach a broader audience cost-effectively.

Recent emergency situations, such as the COVID-19 pandemic, oil spills and natural disasters such as earthquakes, have demonstrated the Agency's ability to rapidly respond to Member States' calls for assistance in unforeseen crises in critical areas such as food supply, human health, environmental assessment and infrastructure safety. The Agency will further enhance its response capacity in order to quickly deploy resources to assist Member States in areas where nuclear and isotopic techniques can complement efforts to address emergency needs.

The Nuclear Sciences and Applications laboratories in Seibersdorf, Vienna and Monaco will continue providing a foundation for the Agency's work by delivering essential products and services to Member

States and underpinning the Agency's programming in areas such as human health, food and agriculture, water and the environment. The modernization of the Nuclear Sciences and Applications laboratories in Seibersdorf through ReNuAL has already increased and improved the capacity of the Agency to efficiently and timely respond to the increasing and evolving needs of Member States.

In support of efficient and effective programme implementation, the Agency will continue to balance its services between responding to the varying demands of Member States and the need to clearly prioritize the technologies/services offered based on comparative advantages and when the commercially available alternatives are not feasible. Partnerships with UN system bodies such as FAO and the WHO, as well as with other international organizations, will be expanded and strengthened where needed and Member State capacities will be utilized where possible through various networks and the IAEA Collaborating Centre scheme.

The Agency will continue organizing international conferences and symposia as well as participating in relevant international events to share experiences and disseminate information on fields related to nuclear science, technology and applications.

C. Improving nuclear safety and security

Taking account of the operating environment and the increasing global demand for non-power and power applications, giving due consideration to both long term operation and phase-out and decommissioning of some of the ageing plants as well as to the associated nuclear safety and security challenges, and recognizing that the responsibility for nuclear safety and nuclear security within a State rests entirely with that State, the Agency will continue to implement its unique function to establish safety standards; play a central role in developing comprehensive nuclear security guidance documents as well as play a central and coordinating role in supporting Member States' national efforts to strengthen nuclear and radiation safety and nuclear security infrastructure; and conduct, upon request, peer reviews and advisory services as a feedback mechanism to assess the implementation of safety standards and security guidance.

The Agency will ensure that its safety standards and security guidance are regularly reviewed and revised as necessary in order to remain current and increasingly reflect new trends and international good practices. Work will continue to facilitate a coordination process relating to the interface between nuclear safety and nuclear security, particularly in developing safety standards and security guidance while recognizing the distinction between them.

The Agency will continue to encourage and support States that have not yet done so to adhere to and implement international nuclear safety and nuclear security legal instruments under its auspices, such as the legally binding international conventions and non-binding codes of conduct. It will coordinate their review and update as requested. The Agency will continue to provide secretariat services for meetings held in conjunction with conventions and codes of conduct.

The increased use of nuclear power and radiation sources and emerging new technologies requires ongoing focus on the development of infrastructure for nuclear, radiation, transport, waste and environmental safety, nuclear security, and emergency preparedness and response, including the legal and regulatory infrastructure to cover the whole life cycle of nuclear installations – including SMRs and innovative designs – and radiation sources. Noting that the use of nuclear power and radiation sources can only be sustainable if it is safe and secure throughout its lifetime, and noting that sustainability can be achieved only through building institutional capacities, the Agency will assist States, upon request, to establish licensing methodologies, improve safety and security assessment

capabilities, enhance safety and security culture, improve the capabilities of their technical support organizations, and facilitate knowledge transfer, and it will also provide them with assistance to develop plans for the safe and secure handling of nuclear and radioactive materials throughout their life cycle. As an increasing number of facilities — nuclear power plants, research reactors and research centres — are expected to be transitioning from operation to decommissioning, there will be a future need to strengthen support in expanding safety and technology related activities in decommissioning, remediation, long term storage including spent fuel management and, in particular, the final disposal of radioactive waste. The Agency will also support Member States in addressing safety issues related to the radiation protection of workers, patients, the public and the environment, and to the transport of radioactive sources and nuclear material, as well as in addressing regulatory issues.

The Agency, in consultation and coordination with Member States, will assess the overall structure, effectiveness and efficiency of its peer reviews and advisory services and continue to strengthen its peer review services and self-assessment tools by incorporating lessons learned. It will assist States, upon their request, in their application of relevant safety standards and security guidance; promote continuous improvement, and support the development of openness and transparency while maintaining the confidentiality of relevant information as appropriate; and facilitate knowledge sharing and mutual learning.

The Agency will, as appropriate, support the international nuclear community to harmonize regulatory and standardize industrial approaches in support of the global deployment of safe and secure SMRs.

The Agency will continue to assist States in capacity building in all topical areas of nuclear and radiation safety and nuclear security to meet the increasing demand for qualified staff, including through enhanced education and training programmes. Member States will be encouraged to adopt a national strategic approach to education and training based on needs assessment in order to optimize resources and to facilitate sustainability. Knowledge sharing will be supported by the further development of national, regional and global safety and security networks and through building strong partnerships between relevant institutions.

The Agency will assist in building and enhancing national and international preparedness for nuclear and radiological emergencies. The Agency will strengthen the international emergency preparedness and response framework, and enhance assistance mechanisms to ensure that the necessary expertise, services and equipment are available promptly upon request to all Member States. The Agency will further develop and exercise its capability to provide Member States, international organizations and the general public with information during a nuclear or radiological emergency on its potential consequences, including analysis of available information and prognosis of possible scenarios. The Agency's Response and Assistance Network (RANET) will be strengthened and Member States will be encouraged to register, maintain and update information on special technical capabilities under RANET relevant to severe nuclear or radiological emergencies.

The Agency will continue to play the central role in strengthening the nuclear security framework globally and in coordinating international activities in the field of nuclear security. The Agency's efforts will be further strengthened to maintain the momentum resulting from the relevant international initiatives with a view to continuously improving the nuclear security framework globally. In doing so, it will give priority to achieving universal adherence to, and full implementation of, the Amendment to the Convention on the Physical Protection of Nuclear Material. The Agency will stand ready to assist States, upon request, to build national capacities to identify nuclear and other radioactive materials outside regulatory control and to regain control of such materials, and to address current and evolving challenges and threats to nuclear security, including cyber security. Agency activities to assist States to

establish and improve sustainable national nuclear security regimes will be implemented through the Nuclear Security Plan as approved by the Board of Governors and endorsed by the General Conference.

The Agency will build on its capacity building foundation of a hands-on approach in training courses and workshops, and the practical application of equipment and systems, through the Nuclear Security Training and Demonstration Centre in Seibersdorf, Austria. Through the provision of a range of capacity building activities, the Agency will support States in addressing unique challenges in nuclear security that require specialized technical infrastructure. The Centre's advanced curriculum and infrastructure will complement the infrastructure and capabilities found in organizations in States providing training, scientific and technical support.

The Agency will continue to focus its efforts on strengthening international cooperation in nuclear security by playing a central and coordinating role in nuclear security activities among international organizations and initiatives, and to work jointly, as appropriate, with relevant international and regional organizations and initiatives. It will organize international conferences and symposia to share experiences and disseminate information, and will participate in relevant international events.

D. Providing effective technical cooperation

The technical cooperation (TC) programme will continue to serve as a major vehicle for the transfer of nuclear science and technology to Member States, for assisting them to establish, maintain and strengthen national and regional capacities to effectively use nuclear technology for development, for supporting Member States' efforts towards achieving the SDGs, and for building strong cooperation with and among Member States, including on a regional and interregional levels.

The TC programme will continue to contribute to sustainable development in Member States through safe, secure and peaceful applications of nuclear science and technologies, taking into account the specific needs of developing countries, including those of the least developed countries.

The formulation of the TC programme will continue to be based on Member States' needs and guided by the Agency's Statute, the established guiding principles outlined in INFCIRC/267, and the relevant directives from the Policy-Making Organs.

The TC programme will follow the principle of shared responsibility. It will be guided by the relevance of the programme to national or regional priorities and needs of Member States. It will support the ownership of Member States and the self-reliance, sustainability and further relevance of national nuclear and other entities in Member States. The Agency will ensure that Member States receiving technical assistance conclude a Revised Supplementary Agreement Concerning the Provision of Technical Assistance by the IAEA.

Through its TC programme, the Agency will facilitate increased access to nuclear science and technology, support knowledge sharing, build and reinforce scientific networks, as well as build Member States' capacity to provide a basis for evidence-based decision making in a range of important areas. The TC programme will continue to focus on improving human health; supporting agriculture and rural development; advancing water resources management; advising on sustainable energy planning and supporting nuclear power plant long term operation and the development of nuclear power infrastructure including through SMRs; addressing environmental challenges; and promoting nuclear safety and security. The TC programme will address institutional and individual capacity building, with continued particular emphasis on human resource development. The TC programme will continue to assist Member States to build and strengthen their regulatory and safety infrastructures as two of the main enablers for the safe use of nuclear science and applications. The TC programme will support

Member States' capacity and increase access to services on various pressing and emerging needs such as natural events, emergencies, and animal and plant outbreaks.

The Agency, through the TC programme, including the Programme of Action for Cancer Therapy (PACT) and relevant human health programmes, will build on past achievements and support Member States to introduce, expand and improve their cancer care capacity by integrating radiotherapy into a comprehensive cancer control programme that maximizes its therapeutic effectiveness and public health impact.

TC programme is needs-based. The Agency will support Member States in technical cooperation planning including through the development of Country Programme Frameworks (CPFs) which will be established based on clearly articulated national priorities and national development plans. Project results should link to CPFs and national priorities, plans or strategic frameworks. At the regional level, programming will be based on regional strategic frameworks and agreed regional profiles. As national and regional priorities may change over time, the TC programme will be designed to be flexible enough to adapt to unforeseen circumstances and evolving country level changes and regional shifts. The Agency will seek to promote cooperation in response to evolving challenges for development through information and knowledge exchange, as well as through capacity strengthening initiatives among Member States, utilizing in particular the expertise available in resource centres in the regions. Strategic planning — rooted in data and evidence, and derived from clear national priorities — will be essential in delivering efficient and effective programmes that help Member States to achieve development results. The focus will be on increasing the efficiency, effectiveness, quality and results-orientation of projects in line with the guidance of the Policy-Making Organs, and on further aligning the TC programme with a results-based approach and promoting good practices in planning, project design and formulation, management and monitoring. Synergies will be sought with other Agency activities that are mutually reinforcing and complementary with the TC programme.

The Agency will seek to improve the rate of attainment of the Technical Cooperation Fund. In addition, building on the Strategic Guidelines on Partnerships and Resource Mobilization, the Agency will continue to mobilize extrabudgetary contributions. Work will continue to achieve the goal of making TC resources sufficient, assured and predictable to support the implementation of activities under TC projects, with a view to maximizing the delivery of the TC programme.

In order to maximize the contribution of nuclear science and technology to the achievement of national development priorities, the Agency will strive to advance global partnerships for development — as envisaged by SDG 17 — with the UN and other multilateral organizations, regional development bodies, other relevant intergovernmental and non-governmental bodies, and the private sector, as appropriate, for coordinated and scaled-up support to Member States. The TC programme will continue to build further its partnerships with Member States, and their institutions, to ensure increased programmatic impact at every level, from local counterparts to other international organizations, to ensure increased programmatic impact as well as increased visibility and awareness of the TC programme.

E. Delivering effective and efficient Agency safeguards

The Agency will continue to implement safeguards in accordance with the rights and obligations under the respective safeguards agreements between States and the Agency. The Agency will continue to independently and objectively implement effective safeguards in order to prevent the use of nuclear material for prohibited purposes in contravention of safeguards agreements, and to provide credible

assurances that the more than 180 States that have safeguards agreements with the Agency in force are fully complying with their safeguards obligations.

The Agency will continue to develop and implement safeguards in the context of the State-level concept within the scope of the State's safeguards agreement, as described in the Board of Governors' documents relevant to the issue, and in line with the assurances provided by the Secretariat as noted by the Board of Governors at its meetings in September 2014.

The Agency will maintain its readiness to implement effective verification and monitoring of nuclear-related commitments under the Joint Comprehensive Plan of Action (JCPOA) in case the JCPOA is resumed.

The Agency will maintain its readiness to play an essential role in verifying the Democratic People's Republic of Korea's nuclear programme and to assist with other verification tasks, as requested by States and approved by the Board of Governors.

The Agency, as directed by its governing bodies and in conformity with the Statute, will conduct its activities in accordance with the purposes and principles of the United Nations to promote peace and international cooperation, and in conformity with policies of the United Nations furthering the establishment of safeguarded worldwide disarmament and in conformity with any international agreements entered into pursuant to such policies. In this regard, the Agency must remain ready to assist, in accordance with its Statute, with verification tasks under nuclear disarmament or arms control agreements that it may be requested to carry out by States parties to such agreements.

The Secretariat will regularly measure progress towards achieving its objectives to enhance safeguards' effectiveness and organizational performance in line with results based management. The Agency will further improve safeguards knowledge management (capture, sharing, retention and utilization) to ensure institutional memory.

The Agency will keep abreast of scientific and technical innovations that hold promising potential for enhancing its technical capabilities and improving safeguards effectiveness and efficiency. It will further modernize and sustain the safeguards technologies, infrastructure and services needed to carry out its verification mission. It will develop and update safeguards approaches for new types of facilities. It will introduce new generations of safeguards equipment, deploy efficient in-field measurement techniques, maintain and further develop infrastructure for remote data transmission and unattended monitoring systems, and further automate related data processing and improve safeguards related data security. It will also explore advancements in sensor technologies and associated data and continue improving the quality of the analyses of nuclear material and environmental samples carried out by the Network of Analytical Laboratories, and introduce state-of-the art technologies that could contribute to the detection of undeclared nuclear material and activities, including age dating of nuclear material. The Agency will capitalize on its modernized IT system to optimize its work and disseminate information within the Department of Safeguards in a timely and secure manner, and keep the system up to date to ensure its resilience in the face of disruptions.

The Agency will continue to make an efficient and non-discriminatory use of information collection, integration and analysis in all its aspects (processes, methodologies, competencies and tools) in exercising its rights and fulfilling its obligations under States' respective safeguards agreements, and to ensure the analytical and technical soundness and consistency in evaluating safeguards relevant information. The evaluation of safeguards relevant information will continue to be conducted collaboratively by staff with multidisciplinary expertise.

The Agency will implement its plan of action to encourage and assist States to conclude safeguards agreements and additional protocols and to accept the revised standard text for small quantities protocols. It will continue to hold consultations with States to assist them, upon request, in building and/or strengthening their capacity for implementing their safeguards obligations through guidance, training and advisory missions. The IAEA Comprehensive Capacity-Building Initiative for SSACs and SRAs (COMPASS) uses a tailored approach in strengthening the effectiveness of State systems of accounting for and control of nuclear material (SSACs) and State or regional authorities responsible for safeguards implementation (SRAs) for each State participating in this initiative. The Agency will work with States requiring support to improve the timeliness and completeness of their safeguards related reports and declarations. It will also work with States to improve their analytical measurement capabilities and to enhance the reliability of the data provided by State or regional systems of accounting for and control of nuclear material.

To address the growing safeguards workload, the Agency will, inter alia, maintain and further improve cooperation with States and regional authorities in the implementation of safeguards, taking into account their respective responsibilities and competencies, and will work with States to optimize safeguards implementation also through the application of technologies and the use of efficient inspection schemes in accordance with the respective safeguards agreements. It will seek to verify spent fuel more efficiently, and will promote ‘safeguards by design’ to help ensure the benefits of early consideration of safeguards requirements in the design, modification and construction of nuclear facilities.

The Agency will reach out to Member States Support Programmes and other partners to enhance its verification capabilities, and associated support needs. It will invite Member States to cooperate with the Agency with regard to the provision of nuclear supply and procurement information.

Recognizing the importance of communication with Member States, the Agency will continue to provide objective, technically and factually based reports to Member States on safeguards implementation in a transparent and timely manner and issue periodic update reports on progress made on improving the effectiveness and efficiency of safeguards. It will continue to engage in and maintain with Member States an ongoing open dialogue on safeguards matters, through technical meetings and other briefings.

The Agency will seek to diversify the safeguards workforce in line with the Statute, build their skills and expertise, and will continue ensuring the health, safety and security of its staff, mindful of elevated security levels in some locations.

The Agency will manage safeguards assets (information, infrastructure, technology etc.) strategically, with long-term vision and planning. To ensure information security, it will protect safeguards information from increasing information security threats, by enhancing physical security, strengthening cyber defences, maintaining information security policies and procedures, and by raising security awareness among staff. It will also ensure the continuity of safeguards implementation by taking preparatory measures to guard against and recover from any major disruptions to the Agency’s work and will prepare for a changing operating environment through strategic foresight and planning.

F. Providing effective, efficient and innovative management and sound programme and budget planning

The continued growing demand for the Agency’s activities and services will increase the need for sustained effective and efficient management, coordination and support.

This strategic objective is aimed at providing overarching guidance, direction and support in relation to the planning and the efficient and effective implementation of the Agency's programme. The Agency's programme will be planned and implemented following the results based management approach in a coordinated manner with clear authority and accountability, and with due regard to quality and risk management. Communication with Member States is essential. The Agency will continue to focus on those areas in which the Agency can make a unique contribution.

Demands for Agency activities continue to grow across all of the Agency's programmes. The Agency will seek prioritization and efficiency gains in the planning and implementation of its programme and budget, including through the streamlining of work processes, and the sharing of good practices, lessons learned and innovative management approaches, such as exploring the establishment of mechanisms to address the After Service Health Insurance liability without requesting additional resources, while taking into consideration recommendations of External Auditors and the Office of Internal Oversight Services in accordance with the established regulations and procedures. At the same time, adequate resources to effectively deliver the Agency's activities will be needed. The Agency will continue its efforts to secure the necessary funding through Regular Budget and voluntary contributions to meet the growing demands, including through partnerships and resource mobilization, as defined in the Strategic Guidelines on Partnerships and Resource Mobilization.

The Agency will continue to maintain and develop its IT capabilities to support evolving business needs. To prevent and address rapidly changing cybersecurity threats, the Agency will seek to enhance its information security infrastructure and continuity of operations. Special attention will be given to ensuring the continued security of information with which the Agency is entrusted.

Wide recognition of the Agency's work is crucial to ensure support for its mission. The Agency will promote its mission, activities and achievements to increase its audience among relevant stakeholders and the public through both the media and direct communication channels. The Agency will promote treaties adopted under the Agency's auspices.

The Agency will further enhance human resource management, including planning, outreach, recruitment and staff development, to secure and retain employees with the highest standards of efficiency, technical competence and integrity. The Agency will effectively apply performance evaluation of its staff. Subject to the above, the Agency will continue to promote gender mainstreaming in its programme, as well as gender equality and as wide a geographical representation as possible within the Secretariat. The Marie Skłodowska-Curie Fellowship Programme (MSCFP) will continue to play an important role in inspiring and encouraging women to pursue a career in nuclear science and technology, nuclear safety and security, or non-proliferation.

The Agency will continue outreach activities to encourage Member States to ratify the amendments to Articles VI and XIV.A of the Statute.

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The achievement of the above strategic objectives will be assessed by the degree to which the outcomes of the Agency's programme meet and satisfy Member States' priorities, requests and development needs. The Agency will continue to pursue its multifaceted strategic objectives, while ensuring an appropriate balance among all activities of the Agency. The activities of the Agency will be carried out with due observance of the sovereign rights of States, according to the provisions of the Statute, including the Agency's principle of the sovereign equality of all its members. It will strive to continue to improve efficiency, effectiveness, accountability and transparency. The Agency will ensure sustainable in-house capacity in all relevant areas to fulfil its statutory responsibilities. Making nuclear science and technology available to its Member States, especially developing countries, in a safe, secure

and peaceful manner will continue to be an important part of the Agency's work. The Agency will remain an organization that delivers concrete results and makes a real difference to the lives of people all over the world.