Extract RCA MTS 2018-2023 Strategic Priorities

C.2. Strategic Priorities

In developing the strategic priorities for the period 2018-2023, particular attention has been given to the following matters:

i) The trends, lessons and good practices drawn from the analysis of the achievements attained under the previous MTS 2012-2017;

ii) The importance and priority assigned by RCA GPs to these development areas, taking into consideration the role that the new and/or emerging nuclear techniques could play in the foreseeable future; and

iii) The strategic importance of aligning the RCA future strategic priorities with the relevant SDG targets of the region to gain more relevance and visibility and to play a significant role in the contribution to the region's development goals.

A Table showing the aligned RCA strategic priorities with the SDGs and the corresponding nuclear techniques and methods is attached as Annex 2.

C.2.1. Priorities in Food and Agriculture

i) Increase agricultural production, productivity and quality of plant and animal commodities through sustainable use of available resources;

ii) Contribute towards better adaptation to human activities and climate change by strengthening resilience to external and climate shocks such as natural disasters, coastal erosion and drought;

iii) Facilitate global trade in food through the applications of NS&T that may contribute to regionally harmonized regulatory systems and enhance food safety and security;

iv) Educate extension services and farmers to be more responsive to the introduction of new nuclear and related technologies.

C.2.2. Priorities in Human Health

i) Strengthen cancer management programmes in GPs, including training of radiation oncologists, medical physicists and technologists;

ii) Simplify and harmonize protocols on diagnostic imaging and for treatment/palliation planning and radiotherapy treatment;

iii) Assist in the development and utilization of radio-labelled pharmaceuticals for imaging and treatment;

iv) Strengthen nuclear medicine to effectively diagnose and assess the extent of cardiovascular diseases, diabetes, mosquito-based diseases, and to monitor cancer treatment effects;

v) Promote nutritional studies to develop and monitor nutrition programmes to address malnutrition in all its forms;

vi) Promote system-based approach to address communicable diseases; namely TB, HIV/AIDS, malaria and other emerging diseases.

C2.3. Priorities in Industry

i) Increase sustainable use of natural resources to produce viable products through radiation technologies;
ii) Improve safety and efficiency, reduce pollution and energy consumption of industrial processes through radiotracer techniques, NDT/NDE, and advanced CT, and radiation processing technologies;
iii) Expand the use of nuclear techniques in emerging industries (nanotechnology, biotechnology, robotics, nucleonics and semiconductor).

C.2.4. Priorities in Environment

Air Pollution

i) Continue to improve and strengthen knowledge on application of nuclear analytical techniques for characterization and identification of sources of air pollution, especially for the new GPs;
ii) Facilitate the use of regional database on coarse and fine air particulates by the end-users for decision making purposes;
iii) Assess the health impact of air pollution;
iv) Expand air pollution studies through application of other nuclear and related techniques and methodologies.

Coastal and Marine Resources

i) Enhance the capability to assess the impact of human activities and climate change on marine and coastal ecosystems;
ii) Facilitate the use of regional database on marine radioactivity and pollutants by the end-users for decision making purposes;
iii) Assist the relevant regulatory authorities to adopt nuclear based analytical techniques to improve decision making related to marine pollution, including Harmful Algal Blooms (HAB).

Water Resources

i) Strengthen the capacity and capability of water administrations to effectively manage water resources;
ii) Assess the effect of human activities and climate change on the water cycle;
iii) Promote the application of nuclear techniques in environmental forensics to identify sources of pollutants, to understand anthropogenic and geogenic mechanisms and to support remedial actions.

C.2.5. Radiation Safety

i) Encourage self-assessment and peer review of regulatory infrastructure by the NRAs in RCA GPs, and harmonize related methodologies and approaches at the regional level;

ii) Mentor new RCA GPs as well as those GPs without adequate radiation safety infrastructure to achieve the safety levels required by IAEA Thematic Safety Areas (TSA) 1,2 &3, and to plan for the next TSAs in accordance with their specific requirements and resources.

C.2.6. Energy Planning

i) Enhance the regional capacity and capability in energy forecasting and planning in support of informed decision and policy making; and
ii) Assist developing GPs in conducting country-specific studies on sustainable energy development using TCDC and other appropriate modalities.

ANNEX 2

RCA REGIONAL STRATEGIC PRIORITIES 2018-2023
ALIGNED WITH THE SDGs FOR ASIA AND THE PACIFIC REGION

RCA Strategic Priority areas for 2018-2023	**Potential nuclear and related techniques to address the strategic priorities**	**Corresponding targets in the UN Sustainable Development Goals (SDGs) for Asia and the Pacific region**
Food and Agriculture Priorities	**Major nuclear and related techniques include**	**Goal 2: End hunger, achieve food security and improved nutrition, and promote sustainable agriculture**
1. Increase agricultural production, productivity and quality of plant and animal commodities through sustainable use of available resources 2. Contribute towards better adaptation to human activity and climate change by strengthening resilience to external and climate shocks such as natural disasters, coastal erosion and drought 3. Facilitate global trade in food through the applications of nuclear science and technology that may contribute to regionally harmonized regulatory systems and enhance food safety and security 4. Educate extension groups and farmers to be more responsive to the introduction of new nuclear and related technologies.	Nuclear and related technologies to improve livestock production and health Radiation-based techniques to breed new varieties of crops Nuclear and isotopic techniques to enhance food and biofuel production Radiation-based technology to control major pest insects Nuclear and isotopic techniques for upgrading laboratory management and quality control programmes Nuclear and isotopic techniques to detect, monitor, control and manage contaminated foods	**Targets for Goal 2:** 2.1 ensure access to safe and nutritious food 2.2 end all forms of malnutrition 2.3 double the agricultural productivity 2.4 implement resilient agricultural practices that increase productivity and production, help maintain ecosystems, strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters, and progressively improve land and soil productivity 2.5 maintain genetic diversity of seeds 2.6 increase agricultural research, technology development, and plant and livestock gene banks

Human capacity in all above-mentioned priority areas (Sector cross-cutting priority need)		
Human health priorities	**Major nuclear and related techniques include**	**SDG 3: Ensure healthy lives and promote well-being for all at all ages**
1. Strengthen cancer management programmes in GPs, including training of radiation oncologists, medical physicists and technologists 2. Simplify and harmonize protocols on diagnostic imaging and for treatment/palliation planning and radiotherapy treatment 3. Assist in the development and utilization of radio-labelled pharmaceuticals for imaging and treatment 4. Strengthen nuclear medicine to effectively diagnose and assess the extent of cardiovascular diseases, diabetes, mosquito-based diseases, and to monitor cancer treatment effects 5. Promote nutritional studies to develop and monitor nutrition programmes to address malnutrition in all its forms 6. Promote system-based approach to	➢ Holistic approaches to develop national cancer control programmes and resources mobilization strategies for improving cancer management (PACT Programme) ➢ Use of radiation oncology techniques for curative and palliative cancer management ➢ Quality management systems to ensure high dosimetry standards for patients and safety at work places ➢ Build nuclear medical capabilities to effectively diagnose and assess the extent of cardiovascular & other chronic diseases, and to monitor treatment effects ➢ Facilitate accessibility to quality radiopharmaceuticals required for nuclear medicine applications ➢ Diagnosis and monitoring of the efficacy of drugs used to treat communicable diseases such as TB, Malaria and HIV/AIDS ➢ Use of stable isotope techniques for the	**Targets for Goal 3:** 3.3 end the epidemics of AIDS, tuberculosis, malaria, and neglected tropical diseases 3.4 reduce by one-third premature mortality from non-communicable diseases (NCDs) 3.5 strengthen the capacity of all countries and management of national and global health risks

address communicable diseases; namely TB, HIV/AIDS, malaria and other emerging diseases Human capacity and physical infrastructure building in all above-mentioned priority areas (Sector cross-cutting priority need)	development and monitoring of nutrition programmes to address malnutrition in all its forms	
Priorities in the Industry sector	**Major nuclear techniques include**	**SDG 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation**
1. Increase sustainable use of natural resources to produce viable products through radiation technologies 2. Improve safety and efficiency, reduce pollution and energy consumption of industrial processes through radiotracer techniques, NDT/NDE, and advanced CT 3. Expand the use of nuclear techniques in emerging industries (nanotechnology, biotechnology, robotics, nucleonics and semiconductor) Human capacity and physical infrastructure building in all above-mentioned priority areas (Sector cross-cutting priority need)	➢ Utilization of research reactors and particle accelerators for R&D, applications and service ➢ Radiation processing applications for food safety, materials development, air pollution and wastewater control, and medical product sterilization ➢ Industrial radiation techniques, including radiotracers, nucleonic control systems and non-destructive testing techniques (NDT) ➢ Nuclear fusion research and development, including collaboration with and support of the International Thermonuclear Experimental Reactor (ITER) project	**Targets for Goal 9:** 9.4 adoption of clean and environmentally sound technologies and industrial processes, all countries taking action in accordance with their respective capabilities 9.5 enhance scientific research, upgrade the technological capabilities of industrial sectors 9.5.b support domestic technology development, research and innovation in developing countries

RCA priorities in water resources management	Major nuclear and related techniques include	SDG 6: Ensure availability and sustainable management of water and sanitation for all
1. Strengthen the capacity and capability of water administrations to effectively manage water resources 2. Assess the effect of human activities and climate change on the water cycle 3. Promote the application of nuclear techniques in environmental forensics to identify sources of pollutants and to understand anthropogenic and geogenic mechanisms, and support remedial actions Human capacity and physical infrastructure building in all above-mentioned priority areas (Sector cross-cutting priority need)	➢ Nuclear and isotopic hydrology techniques to map renewable and non-renewable groundwater resources ➢ Isotopic investigations of degrading water quality from agricultural and other anthropogenic activities ➢ Use of isotope and related techniques to improve scientific understanding of the water cycle under existing and future climatic conditions	**Relevant targets for SDG 6:** 6.3 improve water quality by reducing pollution and minimizing release of hazardous chemicals and materials 6.4 increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity 6.5 implement integrated water resources management at all levels, including through trans-boundary cooperation as appropriate 6.6 protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes 6.6.a expand international cooperation and capacity-building support to developing countries in water and sanitation related activities

RCA priorities in Coastal and Marine Resources	Major nuclear and related techniques include	SDG 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development
1. Enhance the capability to assess the impact of human activities and climate change on marine and coastal ecosystems 2. Facilitate the use of regional database on marine radioactivity and pollutants by the end-users for decision making purposes 3. Assist the relevant regulatory authorities to adopt nuclear based analytical techniques to improve decision making related to marine pollution including Harmful Algal Blooms (HAB). Human capacity and physical infrastructure building in all above-mentioned priority areas (Sector cross-cutting priority need)	➢ Coastal pollution. remote sensing products and modeling the dispersion of radiotracers and pollutants in coastal environments to elucidate the link between submarine groundwater discharge and formation of harmful algae blooms, using radiotracer, radioassay and stable isotopic techniques ➢ Radionuclides to date corals and sediments ➢ Land-based contaminants. Applications of radiotracer and other nuclear techniques into the bioavailability and fate of toxic compounds at trace levels ➢ Climate change studies. radiotracers track ocean circulation and formation of new water masses in oceanic regions that are responsible of sinking of carbon and heat. Study results are used to validate global ocean circulation models to quantify past temperature changes and to predict future changes	**Relevant targets for SDG 1:** 1. prevent and significantly reduce marine pollution of all kinds 2. sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts 3. minimize and address the impacts of ocean acidification, including through enhanced scientific cooperation at all levels **4.** increase scientific knowledge, develop research capacities and transfer marine technology and to enhance the contribution of marine biodiversity to the development of developing countries

RCA priorities in air in urban air pollution	Major nuclear and related techniques include	Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable
1. Continue to improve and strengthen knowledge on application of nuclear analytical techniques for characterization and identification of sources of air pollution, especially for the new GPs 2. Facilitate the use of regional database on coarse and fine air particulates by the end-users for decision making purposes 3. Assess the health impact of air pollution 4. Expand air pollution studies through application of other nuclear and related techniques and methodologies Human capacity and physical infrastructure building in all above-mentioned priority areas (Sector cross-cutting priority need)	➢ Nuclear Analytical Techniques (NAT) for characterization and identification of source of air pollution in urban zones ➢ Use NAT and related methods to further update and refine the regional database on coarse and fine APM ➢ Explore new and innovative analytical techniques such synchrotron to improve the studies	**Relevant targets for SDG 11:**

RCA priorities to address human activities including climate change consequences	Major nuclear and related techniques include	SDG 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation
1. Assess the effect of human activities and climate change on the water cycle 2. Enhance the capability to assess the impact of human activities and climate change on marine and coastal ecosystems Human capacity and physical infrastructure building in all above-mentioned priority areas (Sector cross-cutting priority need)	Nuclear and isotopic techniques to improve land and water; management, mitigate effects of climate change, and help develop and implement adaptive measures	**Relevant Targets for SDG 15:** 1. restore degraded land and soil, including land affected by desertification, drought 2. conservation of mountain ecosystems, including their biodiversity 3. promote appropriate access to generic resources
RCA priorities in energy	**Major nuclear and related techniques include**	**SDG 7: Ensure access to affordable, reliable, sustainable and modern energy for all**
1. Enhance the regional capacity and capability in energy forecasting and planning in support of informed decision and policy making 2. Assist developing GPs in conducting country-specific studies on sustainable energy development using TCDC and other appropriate modalities	➢ Energy planning Models to develop national energy mix ➢ Methodologies fir analysis and interpretation of results ➢ Strategies preparation and updating in national energy mix	**Relevant Targets for SDG 7:** 7.increase substantially the share of renewable energy in the global energy mix; 7.a enhance international cooperation to facilitate access to clean energy research and technologies, including renewable energy, energy efficiency, and advanced and cleaner fossil fuel technologies; 7.b expand infrastructure and upgrade technology for supplying modern and sustainable energy services

RCA priorities in radiation and nuclear safety	Major nuclear and related techniques include	SDG 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
Encourage self-assessment and peer review of regulatory infrastructure by the NRAs in RCA GPs, and harmonize related methodologies and approaches at the regional level; Mentor new RCA GPs as well as those GPs without adequate radiation safety infrastructure to achieve the safety levels required by IAEA Thematic Safety Areas (TSA) 1,2&3, and to plan for the next TSAs in accordance with their specific requirements and resources	Radiation Protection of workers, patients and the public	**Relevant Targets for SDG 8:** 8.8 protect labour rights and promote safe and secure working environments of all workers
RCA high priority means of implementation	**Major nuclear and related techniques include**	**SDG 17: Strengthen the means of implementation and revitalize the global partnership for sustainable development**
1. Promote regional cooperation, integration, TCDC and partnership building to enhance the utilization of peaceful applications of NS&T for socio-economic development 2. Building human capacities though the IAEA training and education programmes in all relevant fields of NS&T	i) Provide practical to build expertise and skills in all forms of cooperation ii) Help develop harmonized training curricula in various fields of NS&T (resource mobilization, sustainability, public relations, income generation) iii)IAEA Nuclear Knowledge Management and preservation methodologies and training tools iv)Develop and facilitate access to ICT-based	**Relevant targets for SDG 17:** **Technology** 17.6 enhance North-South, South-South and triangular regional and international cooperation on and access to science, technology and innovation, and enhance knowledge sharing 17.7 development, transfer, dissemination and diffusion of environmentally sound technologies to developing countries

3. Provision of advisory assistance to mentor scientists and technicians in Member States 4. Promote twinning between education institutions, including e-leaning and harmonization of curricula	training/learning and strengthen education systems	17.8 operationalize the Technology Bank and STI mechanism **Capacity-building** 17.9 enhance international support for implementing effective and targeted capacity building in developing countries to support national plans to implement all sustainable development goals, including through North-South, South-South, and triangular cooperation