



**REGIONAL COOPERATIVE
AGREEMENT**

**INTERNATIONAL ATOMIC ENERGY
AGENCY**



**RCA MEDIUM TERM STRATEGY
2018-2023**

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ACRONYMS

ADB	Asian Development Bank
AEC	Atomic Energy Commission
AFRA	African Regional Cooperative Agreement
AI	Artificial Insemination
AIDS	Acquired Immune Deficiency Syndrome
ARASIA	Co-operative Agreement for Arab States in Asia for Research, Development and Training related to Nuclear Science and Technology
ARCAL	Co-operation Agreement for the Promotion of Nuclear Science and Technology in Latin America and the Caribbean
ASEAN	Association of South East Asian Nations
AW-IPM	Area Wide Integrated Pest Management
BSS	International Basic Safety Standards for Protection against Ionizing Radiation and for the Safety of Radiation Sources <i>or</i> Basic Safety Standards
BDU	Business Development Unit
CT	Computer Tomography
DNA	Deoxyribonucleic Acid
ESCAP	Economic and Social Commission for Asia and the Pacific
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FMC	Field Management Committee
GCM	General Conference Meeting
GEF	Global Environment Facility
GOR	RCA Guidelines and Operating Rules
GP	Government Party
HRD	Human Resource Development
IAEA	International Atomic Energy Agency
ICT	Information and Communication Technology
INIS	International Nuclear Information System
ISO	International Standards Organisation
LCC	Lead Country Coordinator
LDC	Least Developed Country
MDGs	Millennium Development Goals
MoR	Meeting of Representatives
MOU	Memorandum of Understanding
MS	Member State
MTS	Medium Term Strategy
MVD	Mutant Variety Database

NC	National Coordinator
NDT	Non-Destructive Testing
NGO	Non-Governmental Organization
NKM	Nuclear Knowledge Management
NNI	National Nuclear Institution
NRA	Nuclear Regulatory Authorities
NRM	National Representatives Meeting
NS&T	Nuclear Science and Technology
PAC	Programme Advisory Committee
NPC	National Project Coordinator
QA	Quality Assurance
QC	Quality Control
QMS	Quality Management System
R&D	Research & Development
RCA	Regional Co-operative Agreement for Research, Development and Training Related to Nuclear Science and Technology
RCARO	RCA Regional Office
RCF	Regional Cooperative Framework
RIA	Radio-Immune Assay
RRU	Regional Resource Unit
SAC	Standing Advisory Committee
SDGs	Sustainable Development Goals
STI	Science, Technology and Innovation
TCAP	Division for Asia and the Pacific, Technical Cooperation Department
TCDC	Technical Cooperation amongst Developing Countries
TE-NORM	Technologically enhanced naturally occurring radioactive materials
UN	United Nations
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNDESA	United Nations Department of Economic and Social Affairs
UNDP	United Nations Development Programme
UNECA	United Nations Economic Commission for Africa
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNIDO	United Nations Industrial Development Organization
UNSD	United Nations Statistic Division
UT	Ultrasonic testing
WFP	World Food Programme
WHO	World Health Organization
WTO	World Trade Organisation

A. BACKGROUND

The Regional Cooperative Agreement for Research, Development and Training Related to Nuclear Science and Technology (RCA) is an intergovernmental agreement established under the auspices of the International Atomic Energy Agency (IAEA). The RCA is open to participation of any IAEA Member State in the areas of South Asia, South East Asia and the Pacific or Far East. An IAEA Member State from one of these regions may become a party to this Agreement by notifying its acceptance thereof to the Director General of the IAEA. The text of the Agreement provides the legal framework and guidance for regional cooperation under the RCA. The list of RCA Government Parties (GPs) as of 2015 is shown in Annex 1.

This Medium Term Strategy (MTS) 2018-2023 is the key strategic plan for improving the efficiency and effectiveness of the RCA programme. It articulates how the RCA can effectively discharge its Mission and apply the instruments and processes at its disposal to maximize its contribution to the development goals of its GPs. The MTS sets out the Vision, Mission and a set of strategic directions, priorities and values for the RCA, as an extension of the MTS for the period 2012-2017.

The framework and methodology used to develop the MTS 2018–2023 took stock of the progress achieved so far under the MTS 2012-2017, benefited from the opportunities created by the region’s rapid economic growth and considered new paths for the RCA to exercise its comparative strengths and position itself as an effective role player in the region’s development agenda. Furthermore, the decisions involved in the development of the new MTS 2018-2023 stem from broad and substantive consultations with the RCA GPs as well as the IAEA. Working Groups and Expert Meetings were convened in 2014 and 2015 to define future strategic trends, directions and strategic priorities for the period 2018-2023, and to develop the draft MTS 2018-2023 for consideration and approval by the Meeting of the RCA National Representatives.

B. RCA STRATEGIC CONTEXT

The MTS 2018-2023 has been developed with due consideration to the strategic context of the region, including the internal and external factors that are driving the socio-economic transformation of Asia and the Pacific, as well as the requirements and constraints that affect the transformation process and the evolving international development landscape.

B.1. Mid-term Achievements of the RCA MTS 2012-2017

Guided by its MTS 2012-2017, the RCA has continued its development efforts over the past three years through a myriad of high priority initiatives and actions aimed at further consolidating the momentum in place, particularly to address the human capacity building

needs in the new RCA GPs, and expanding the outreach of the programme to bring sound development solutions to more end-users.

In human resource development and capacity building, the RCA efforts have focused on training and education in disciplines where ionizing radiation is contributing effectively towards human development, including human health (radiation oncology, medical physics and nuclear medicine), environment monitoring (nuclear analytical techniques for marine pollution assessment) and radiation processing for industrial applications. Accordingly, a large number of scientists and technologists from the RCA GPs have benefited over the past three years from the RCA regional training courses, meetings and expert missions.

In the field of human health, the learning platform “DATOL” was officially launched at a side event to the 58th IAEA General Conference in September 2014. The launching of the DATOL platform is recognized as an important milestone in human capacity building in the region, as it will make specialized training material accessible to all interested users. Likewise, a distance learning package on radiation oncology was developed and is available at the IAEA Cyber Learning Platform for Nuclear Education and Training.

For industrial application, an e-learning tool has been developed for radiation technology practitioners as part of a training and certification system. This is expected to be utilized worldwide to expand the use of radiotracers and sealed sources applications, improving industrial processes and efficiency in addition to reducing energy consumption.

In the field of marine environment, national capabilities in marine sampling, analysis and impact assessment have been significantly enhanced. The volume of data in the Asia Pacific Marine Radioactivity Database (ASPAMARD) has increased 20-fold as a result of increased submissions from participating countries, significantly enhancing the store of knowledge about the regional marine environment.

The RCA Regional Office (RCARO) has also made significant contributions to the promotion of the RCA visibility and outreach through expanded partnership with other regional organizations, such as the hosting and updating of the RCA web-site, the preparation, publication and dissemination of the RCA brochures and promotional videos, the implementation of nuclear knowledge management programmes and the RCA/UNDP programme, and active participation in relevant international and regional conferences/seminars.

The RCA operational management has been reinforced through the establishment of the Programme Advisory Committee (PAC) to assist in the development and formulation of the RCA programme.

B.2. RCA context for the new MTS 2018-2023

Based on the findings of the situation analysis, the following factors are considered relevant for the new RCA strategy:

- i) The rapid economic, social and environmental transformations occurring in the region, and the resulting challenges and opportunities;
- ii) The adoption of the Post-2015 Development Agenda for Asia and the Pacific, including the Sustainable Development Goals (SDGs)¹ and related Implementation Enablers;
- iii) The IAEA Medium Term and Technical Cooperation Strategies;
- iv) The evolving near-and-medium term regional priorities and policies of the RCA and other regional priorities that may emerge;
- v) Perception of the public about Nuclear Science and Technology (NS&T), particularly after the accident at the Fukushima Daiichi Nuclear Power Station (NPS);
- vi) Predictable core funding of the RCA programme, including the need to secure sufficient revenue and to mobilize adequate resources through partnership building and advocacy;
- vii) Enhancing the relevance, sustainability and self-reliance of National Nuclear Institutions (NNIs) in the RCA GPs;
- viii) International and national trends in NS&T, including new innovative advances in the field as well as strong competition with other techniques and methods;
- ix) The region's nuclear and radiation safety and nuclear security status as well as the regulatory environment; and
- x) Human resource development and skills retention, including the need to create, manage, share and exploit nuclear knowledge, skills and capabilities more effectively.

These strategic factors have guided the adopted future directions, strategic regional priorities and success factors and have helped shape the current MTS.

B.3. Vision

The RCA shall be recognized as an effective partner in providing nuclear technologies that enhance socio-economic wellbeing and contribute to sustainable development in the region.

B.4. Mission

- i) To identify and implement nuclear technologies that address regional priority needs;**
- ii) To encourage sustainability of nuclear technology capacities in the RCA GPs and to ensure effective transfer of those technologies and associated technical know-how to end-users;**

¹ Title of reference document (ESCAP)

- iii) **To coordinate cooperative research in applications of nuclear science and technology in support of agreed regional priority needs;**
- iv) **To promote the benefits of nuclear technologies to appropriate end-users and decision makers and identify potential partners and funding mechanisms to support an expanded the RCA programme; and**
- v) **To develop regional networks for information and experience sharing, mutual assistance and resource mobilization.**

B.5. RCA Principles and Core Values

The RCA GPs are committed to high standards of professionalism, safety/security and ethical behaviour in the peaceful use of nuclear technologies. These core values are fundamental in all RCA activities and underpin the way in which the strategic directions of the RCA programme will be delivered.

- **Safety, Security and Sustainability:** *ensuring safe, secure and environmentally-aware utilization of nuclear science and technology, and contributing to sustainable development within the region;*
- **Honesty, Openness and Integrity:** *building trust and respect within the Government Parties and with all other stakeholders through effective communication;*
- **Collaboration and Responsiveness:** *understanding stakeholders' needs, fostering cooperation and teamwork, embracing new ideas and recognising new trends;*
- **Competence and Professionalism:** *striving to improve standards of expertise and delivery to our stakeholders*

B.6. Critical Processes and Procedures

The RCA “Guidelines and Operating Rules” (GOR) document sets out the roles and responsibilities of RCA operational management leadership and stakeholders, describes the conduct of RCA business and defines the procedures and processes for RCA programme initiation, approval, implementation and evaluation. The GOR is a “living document” and is periodically updated to include operational management-related decisions agreed at either of the Meetings of RCA National Representatives.

The operational management of the RCA programme is performed at three critical levels:
Programme, Project and Resource Mobilization

i) Programme

- RCA procedures for programming and budgeting, using sound nuclear and related knowledge and expertise in the region (LCCs, NPCs, PAC, RCARO);

- Programme monitoring and impact evaluation, as described in the GOR;
- Procedures and rules for the identification and appointment of Resource Research Units (RRUs);
- RCA Committees (PAC, SAC), RCARO and ad hoc working groups.

ii) Project

- Identification of project opportunities, design and formulation procedures and modalities using RCA LCCs, NPCs, National Project Teams, RCARO and PAC;
- Project coordination, monitoring and evaluation;
- Project reports and project work plans;
- Technical/scientific information;
 - Research reports;
 - Guides/good practices;
 - Standards/norms;
 - Technical/Scientific publications.

iii) Resource Mobilization

- Capability to engage a wider community of partners and regional organizations to advocate support for RCA projects;
- Efficient management and administration of RCA human and physical resources;
- Communication strategy to enhance the visibility of and support for the RCA.

B.7. RCA Stakeholders and Stakeholder Trends

B.7.1. RCA Stakeholders

All national and regional beneficiaries of nuclear techniques, such as:

- i) Research workers through training/education and exposure to international fora;
- ii) Patients, doctors, medical technologists (through comprehensive cancer management, nuclear medicine, nutrition studies);
- iii) Farmers, fisher folk, livestock breeders, agricultural traders (through improved crop varieties, soil/water/fertilizer management and animal production and health);
- iv) Industrial businesses and organisations, water administrations and environmental authorities;
- v) Ionizing radiation workers (through training, and safer working conditions); and
- vi) Public in general through better protected environment, and safer techniques and industrial processes.

Collaborators

- i) AECs;

- ii) National NRAs;
- iii) NNIs;
- iv) Agencies of Government Ministries/Departments such as: S&T, Health, Agriculture, Education, Environment, Water and Sewerage, Energy, etc.

Policy Decision Makers

GPs at the NRMs and GCMs.

Resource Suppliers

- i) Fund providers (GPs, IAEA, partners);
- ii) Expertise suppliers (RCA RRUs, GPs, regional and international scientific community);
- iii) Regional and international research institutions (nuclear facilities, processes, technologies);
- iv) RCARO.

Strategic Co-operators

- i) IAEA;
- ii) Other international/regional organizations (such as UNIDO, UNDP, FAO, WHO, GEF, EU, ESCAP, ASEAN, ASEAN+);
- iii) Sister-Agreements in other regions (ARASIA, AFRA, ARCAL) and other regional fora, such as FNCA.

B.7.2. Stakeholder Trends

The following trends regarding stakeholders are identified to forecast future prospects for collaboration and uptake of nuclear techniques:

- i) Increasing the importance assigned to defining a realistic and justifiable role for science, technology and innovation (STI) in the achievement of the Post-2015 Development Agenda;
- ii) Rapid economic growth and transformation in the region;
- iii) Increasing involvement of the private sector in nuclear activities, where it can result in clear benefits to the RCA;
- iv) Legislative changes due to new requirements for nuclear safety and security;
- v) De-regulation of the energy sector in some countries;
- vi) Increasing bilateral cooperative agreements between Asian AECs and sister-AECs in other regions;
- vii) Regulations on safety standards and regulatory practices; such as food standards, standards in the human and animal health, which may bring new opportunities for NS&T; and

- viii) Limited resources versus high expectations from end-users.

C. STRATEGIC DIRECTIONS AND PRIORITIES

The RCA's mandate, experience and comparative advantage lie in a defined set of strategic directions and regional priorities. These revolve principally around identifying and expanding technically and developmentally sound opportunities for RCA GPs to maximize their benefits from the region's available expertise and nuclear facilities to achieve tangible socio-economic impact.

Based on the above situation analysis, the RCA will focus on and direct its resources to the strategic directions and regional priorities described below.

C.1. Strategic Directions

For the period of 2018 to 2023, seven strategic directions are identified for the successful implementation of the RCA programme. Specific actions by the different RCA operational management levels are required for the successful implementation of these strategic directions, which are:

- i) **Strategic Direction 1:** To further enhance the operational management capacity of the RCA;
- ii) **Strategic Direction 2:** To continue enhancing the sustainable contribution of the RCA towards meeting the developmental needs, priorities and interests of the RCA region;
- iii) **Strategic Direction 3:** To ensure full integration of the RCA programme into the national development plans of RCA GPs and align with the SDGs at the regional level, as appropriate to the applications of NS&T;
- iv) **Strategic Direction 4:** To reinforce and consolidate a culture of nuclear safety and security at regional and national levels, while promoting peaceful uses of NS&T for socio-economic development;
- v) **Strategic Direction 5:** To continue building human capacity, including education and training and nuclear knowledge management, and accord particular attention to special needs of: (1) the new RCA GPs, (2) the Least Developed Countries (LDCs) and (3) the Small Island Developing States (SIDSs), to enable them to maximize their benefits from participation in the RCA programme;
- vi) **Strategic Direction 6:** To promote self-reliance, good institutional governance and excellence in management amongst the RCA NNIs; and
- vii) **Strategic Direction 7:** To enhance the general awareness about RCA's regional footprint and underpin resource mobilization efforts.

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.

C.2.3. 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;
- 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.

D. CRITICAL IMPLEMENTATION ENABLERS

To effectively implement the MTS, the RCA's operational management approach should be focused on raising development impact and bringing about sustainable improvements in country outcomes. This includes implementing a rigorous results-based approach to programme design, monitoring and performance management, and the alignment of RCA's operational management structure and financial resources with its strategic priorities, strengthening its capacity to manage and monitor performance, and instilling a culture of accountability for results. Moreover, raising the RCA's development effectiveness and contribution to the region's development goals depends in part on effective communication. This is essential not only for partnership building, policy dialogue, learning and sharing, and responding to the needs of GPs; but also for teamwork and organizational effectiveness. Communication must be an important element of RCA's strategy and policy. In addition, the execution of the MTS will benefit from the following key implementation enablers:

D.1. Operational Management Level

- i) Enhanced RCA operational management structure and procedures to effectively oversee, implement and monitor the execution of the MTS 2018-2023;
- ii) Emphasis on the critical leading role of RCA GPs in the planning, monitoring, evaluation and management of regional cooperation undertakings;
- iii) Development and implementation of sound resource mobilization strategies in collaboration with potential partners;
- iv) Established and well-supported centres for diffusion and outreach of technologies and services for the regional end-users.

D.2. RCA Programme Level

The RCA programme should:

- i) Be needs-driven;

- ii) Pay special attention to human capacity building, as well as the efficient management, preservation of nuclear knowledge and networking;
- iii) Promote adaptive R& D as a component of the RCA programme;
- iv) Evaluate and benchmark the outcomes and achievements of the long-running RCA projects and post-closure projects;
- v) Emphasize the use of available regional expertise and existing facilities in the planning, implementation and evaluation/auditing of the RCA programme;
- vi) Emphasize the implementation of TCDC modalities, including the use of regional expertise and facilities in project design, implementation, monitoring and evaluation; and,
- vii) Have GPs consolidating national capacities and assuming full ownership of the programme's outcomes as a key element of sustainability.

D.3. RCA Project Level

RCA projects should:

- i) Be based on clearly identified and agreed regional needs and priorities;
- ii) Be formulated and implemented using the result-based management approach, including clearly identified and measurable specific outputs and outcomes for each GP;
- iii) Be capable of benefiting from and contributing to the RCA regional cooperation;
- iv) Have strong and long-term commitment from the participating GPs, which is reflected in the full integration of the project outcomes in the relevant national programme;
- v) Promote good practices in project management, monitoring, evaluation and integration of project outcomes; and
- vi) Protect commercially sensitive R&D results/innovations and Intellectual Property.

E. EXECUTION OF THE MEDIUM TERM STRATEGY 2018-2023

The following tasks are required to execute the MTS 2018-2023.

No.	Tasks	Responsible Parties	Action Timelines	Outputs
1	Assess the situation and define the financial gap for programme implementation	WG on financial gap analysis and resource mobilization	2.1 Establish WG: GCM 2016 2.2 Report: NRM 2017	Report on financial gap analysis
2	Review and align the strategy and mechanism for resource mobilization with the MTS	WG on financial gap analysis and resource mobilization	GCM 2017	Recommended resource mobilization strategy for approval
3	Review the formulation, monitoring and evaluation and reporting mechanism and align it with the MTS	PAC	NRM 2016 – NRM 2024	Progress reports and draft procedures
4	Review the human resources development strategy and align it with the MTS	WG on human resources	NRM 2017	Recommended strategy for approval
5	Review the current TCDC and other cooperation modalities and align these with the MTS	PAC & experts group	NRM 2017	Recommended TCDC practice and guidelines for approval
6	Prepare annual work plan for execution of the MTS	NRM	GCM 2017 – GCM 2022	Work plan for agreement and adoption
7	Conduct midterm review of the MTS	WG on MTS midterm review	8.1 Establish WG: GCM 2020 8.2 Report: NRM 2021	Review report
8	Review the need for updating the current GOR, if any	All WGs	As required.	Updated GOR for approval

F. PERFORMANCE INDICATORS

Performance indicators and milestones will be utilized to assess performance in implementing the RCA MTS. These key performance indicators are designed to be measurable, either through the evaluation of the performance of the RCA or through feedback from key stakeholders. Where possible, progress against these indicators should be recorded in the RCA Annual Report and used for ongoing improvement.

1. Ownership

- 1.1. Degree of GPs' commitment to RCA Governance
- 1.2. Degree of GPs' commitment to implementation of their allotted portions of the RCA projects
- 1.3. Efforts made by GPs to provide additional support to RCA programme through EB or IK contributions

2. Programme Soundness

- 2.1. The RCA programme is in full alignment with the MTS
- 2.2. Alignment of RCA projects to national programmes in all participating recipient GPs
- 2.3. Well-identified and defined project outcomes and beneficiaries

3.1. Programme Sustainability

- 3.1. Required financial resources available for the full implementation of the RCA activities
- 3.2. Required human resources available for the full implementation of the RCA activities
- 3.3. Required physical resources, nuclear and associated infrastructure available for the full implementation of the RCA activities

4. Programme Impact

- 4.1. Contribution of projects to overall sustainable development in the region, through assessable impacts in socio-economic development and environmental protection (in relation to SDGs)
- 4.2. The RCA programme is recognised as an effective partner contributing to achievement of socio-economic development and environmental protection for the region (in relation to SDGs)

ANNEX 1

LIST OF RCA GOVERNMENT PARTIES

1. Australia	12. Mongolia
2. Bangladesh	13. Myanmar
3. Cambodia	14. Nepal
4. China	15. New Zealand
5. Fiji	16. Pakistan
6. India	17. Palau
7. Indonesia	18. Philippines
8. Japan	19. Singapore
9. Korea, Republic of (ROK)	20. Sri Lanka
10. Lao People's Democratic Republic	21. Thailand
11. Malaysia	22. Viet Nam

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
<p>1. Increase agricultural production, productivity and quality of plant and animal commodities through sustainable use of available resources</p> <p>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</p> <p>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</p> <p>4. Educate extension groups and farmers to be more responsive to the introduction of</p>	<p>Nuclear and related technologies to improve livestock production and health</p> <p>Radiation-based techniques to breed new varieties of crops</p> <p>Nuclear and isotopic techniques to enhance food and biofuel production</p> <p>Radiation-based technology to control major pest insects</p> <p>Nuclear and isotopic techniques for upgrading laboratory management and quality control programmes</p> <p>Nuclear and isotopic techniques to detect, monitor, control and manage contaminated foods</p>	<p>Targets for Goal 2:</p> <p>2.1 ensure access to safe and nutritious food</p> <p>2.2 end all forms of malnutrition</p> <p>2.3 double the agricultural productivity</p> <p>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</p> <p>2.5 maintain genetic diversity of seeds</p> <p>2.6 increase agricultural research, technology development, and plant and livestock gene banks</p>

<p>new nuclear and related technologies.</p> <p>Human capacity in all above-mentioned priority areas (Sector cross-cutting priority need)</p>		
<p>Human health priorities</p>	<p>Major nuclear and related techniques include</p>	<p>SDG 3: Ensure healthy lives and promote well-being for all at all ages</p>
<ol style="list-style-type: none"> 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 	<ul style="list-style-type: none"> ➤ 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, 	<p>Targets for Goal 3:</p> <p>3.3 end the epidemics of AIDS, tuberculosis, malaria, and neglected tropical diseases</p> <p>3.4 reduce by one-third premature mortality from non-communicable diseases (NCDs)</p> <p>3.5 strengthen the capacity of all countries and management of national and global health risks</p>

<p>address malnutrition in all its forms</p> <p>6. Promote system-based approach to address communicable diseases; namely TB, HIV/AIDS, malaria and other emerging diseases</p> <p>Human capacity and physical infrastructure building in all above-mentioned priority areas (Sector cross-cutting priority need)</p>	<p>Malaria and HIV/AIDS</p> <p>➤ Use of stable isotope techniques for the development and monitoring of nutrition programmes to address malnutrition in all its forms</p>	
<p>Priorities in the Industry sector</p>	<p>Major nuclear techniques include</p>	<p>SDG 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation</p>

<ol style="list-style-type: none"> 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) <p>Human capacity and physical infrastructure building in all above-mentioned priority areas (Sector cross-cutting priority need)</p>	<ul style="list-style-type: none"> ➤ 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 	<p>Targets for Goal 9:</p> <p>9.4 adoption of clean and environmentally sound technologies and industrial processes, all countries taking action in accordance with their respective capabilities</p> <p>9.5 enhance scientific research, upgrade the technological capabilities of industrial sectors</p> <p>9.5.b support domestic technology development, research and innovation in developing countries</p>
<p>RCA priorities in water resources management</p>	<p>Major nuclear and related techniques include</p>	<p>SDG 6: Ensure availability and sustainable management of water and sanitation for all</p>
<ol style="list-style-type: none"> 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 	<ul style="list-style-type: none"> ➤ 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 	<p>Relevant targets for SDG 6:</p> <p>6.3 improve water quality by reducing pollution and minimizing release of hazardous chemicals and materials</p> <p>6.4 increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity</p>

<p>identify sources of pollutants and to understand anthropogenic and geogenic mechanisms, and support remedial actions</p> <p>Human capacity and physical infrastructure building in all above-mentioned priority areas (Sector cross-cutting priority need)</p>	<p>scientific understanding of the water cycle under existing and future climatic conditions</p>	<p>6.5 implement integrated water resources management at all levels, including through trans-boundary cooperation as appropriate</p> <p>6.6 protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes</p> <p>6.6.a expand international cooperation and capacity-building support to developing countries in water and sanitation related activities</p>
<p>RCA priorities in Coastal and Marine Resources</p>	<p>Major nuclear and related techniques include</p>	<p>SDG 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development</p>
<ol style="list-style-type: none"> 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). 	<ul style="list-style-type: none"> ➤ 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 	<p>Relevant targets for SDG 14:</p> <ol style="list-style-type: none"> 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

<p>Human capacity and physical infrastructure building in all above-mentioned priority areas (Sector cross-cutting priority need)</p>	<p>trace levels</p> <ul style="list-style-type: none"> ➤ 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 	<p>the development of developing countries</p>
<p>RCA priorities in air in urban air pollution</p>	<p>Major nuclear and related techniques include</p>	<p>Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable</p>
<p>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</p> <p>2. Facilitate the use of regional database on coarse and fine air particulates by the end-users for decision making purposes</p> <p>3. Assess the health impact of air pollution</p> <p>4. Expand air pollution studies through application of other nuclear and related techniques and methodologies</p> <p>Human capacity and physical infrastructure building in all above-mentioned priority areas (Sector cross-cutting priority need)</p>	<ul style="list-style-type: none"> ➤ 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 	<p>Relevant targets for SDG 11:</p>

<p>RCA priorities to address human activities including climate change consequences</p>	<p>Major nuclear and related techniques include</p>	<p>SDG 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation</p>
<p>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)</p>	<p>Nuclear and isotopic techniques to improve land and water; management, mitigate effects of climate change, and help develop and implement adaptive measures</p>	<p>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</p>
<p>RCA priorities in energy</p>	<p>Major nuclear and related techniques include</p>	<p>SDG 7: Ensure access to affordable, reliable, sustainable and modern energy for all</p>

<p>1. Enhance the regional capacity and capability in energy forecasting and planning in support of informed decision and policy making</p> <p>2. Assist developing GPs in conducting country-specific studies on sustainable energy development using TCDC and other appropriate modalities</p>	<ul style="list-style-type: none"> ➤ Energy planning Models to develop national energy mix ➤ Methodologies for analysis and interpretation of results ➤ Strategies preparation and updating in national energy mix 	<p>Relevant Targets for SDG 7:</p> <p>7.increase substantially the share of renewable energy in the global energy mix;</p> <p>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;</p> <p>7.b expand infrastructure and upgrade technology for supplying modern and sustainable energy services</p>
<p>RCA priorities in radiation and nuclear safety</p>	<p>Major nuclear and related techniques include</p>	<p>SDG 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all</p>
<p>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;</p> <p>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</p>	<p>Radiation Protection of workers, patients and the public</p>	<p>Relevant Targets for SDG 8:</p> <p>8.8 protect labour rights and promote safe and secure working environments of all workers</p>

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
<ol style="list-style-type: none"> 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 through the IAEA training and education programmes in all relevant fields of NS&T 3. Provision of advisory assistance to mentor scientists and technicians in Member States 4. Promote twinning between education institutions, including e-learning and harmonization of curricula 	<ol style="list-style-type: none"> 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 training/learning and strengthen education systems 	<p>Relevant targets for SDG 17:</p> <p>Technology</p> <p>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</p> <p>17.7 development, transfer, dissemination and diffusion of environmentally sound technologies to developing countries</p> <p>17.8 operationalize the Technology Bank and STI mechanism</p> <p>Capacity-building</p> <p>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</p>