The Agency's Programme and Budget 2018–2019

IAEA 60 Years
Atoms for Peace and Development

GC(61)/4

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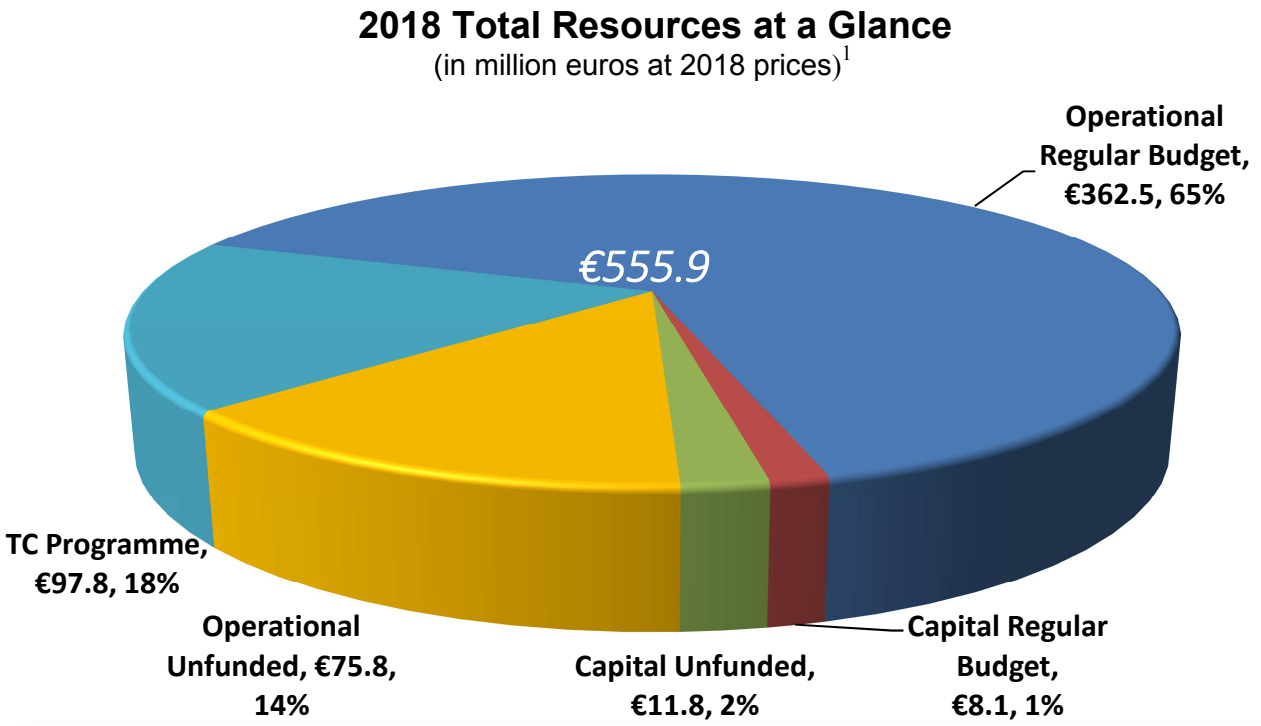
Introduction

The environment in which the Agency operates is marked by an increase in its membership and the use of nuclear technologies and applications as well as countries' growing adherence to international legal instruments in the areas of nuclear safety, nuclear security and safeguards. This has led to an increase in demand by Member States for the Agency's services. The integration into the Regular Budget of the funding for the Agency's verification and monitoring activities in the Islamic Republic of Iran as set out in the Joint Comprehensive Plan of Action (JCPOA) has also an impact on the Programme and Budget 2018–2019. Recognizing the Agency's statutory objective of seeking to "accelerate and enlarge the contribution of atomic energy to peace, health and prosperity throughout the world", and the important contribution of its work in support of the Sustainable Development Goals (SDGs), appropriate emphasis is placed on the Agency's activities supporting the implementation of the SDGs in Member States.

At the same time, the difficult global economic situation and financial constraints in many Member States are likely to continue in the coming biennium. The Agency's now well established two-step approach was applied during the budget preparation process to identify possible efficiencies and to focus on the essential priorities to be included in the Programme and Budget 2018–2019. This proposal continues to follow a results-based approach in developing the Agency's programmes and setting their objectives.

The Agency's priorities for the coming biennium are technical cooperation including the Programme of Action for Cancer Therapy (PACT) with the highest percentage increase; nuclear safety and security; verification and monitoring of Iran's nuclear-related commitments as set out in the JCPOA; and Renovation of the Nuclear Applications Laboratories (ReNuAL+) project, focusing on those elements in the original ReNuAL plan that could not be accommodated. Nuclear energy, as a statutory function of the Agency, will continue to be a priority.

2018–2019 Programme and Budget at a Glance



€370.5 million	*2018 Regular Budget (operational and capital)*
1.1%	*1.1% real growth over 2017 for the operational Regular Budget, which includes 0.3% increase for JCPOA as agreed by Member States*[2]
	1.2% decrease over 2017 for the capital Regular Budget
0.1%	*Overall average price adjustment for 2018*[3]
€1.1 million	*Integration of JCPOA related funding into the Regular Budget in each year of 2018–2019 biennium*
€2.0 million	*2018 capital Regular Budget for ReNuAL+*
2.9%	*Increase in the funding of Management of Technical Cooperation for Development over 2017*
56 GS Positions	*Reduced since the AIPS implementation started in 2011 (6%)*

[1] All figures in this document are presented at 2018 prices, unless otherwise indicated. Figures in tables might not add up to corresponding sums owing to rounding.

[2] *The Agency's Budget Update for 2017* (GC(60)/2).

[3] The price adjustment for 2019 will be presented in *The Agency's Draft Budget Update for 2019*.

PART I

The Agency's Programme and Budget 2018–2019

I.1 Overview

Overview

1. The environment in which the Agency operates is marked by an increase in its membership and the use of nuclear technologies and applications, as well as countries' growing adherence to international legal instruments in the areas of nuclear safety, nuclear security and safeguards. This has led to an increase in the demand by Member States for the Agency's services.

2. The Agency has been experiencing limited growth in its Regular Budget for some time. This reflects the global economic situation and the financial difficulties and challenges faced by many Member States that are likely to continue in 2018–2019. Understanding that the Agency's budget cannot be expected to grow to match the increase in demand for its services, the Director General is proposing a modest increase for the coming biennium.

3. *The Agency's Programme and Budget 2018–2019* takes into account discussions that took place in 2016 and agreements reached in the context of *The Agency's Budget Update for 2017 (GC(60)/2)*. As a result, the costs associated with the Agency's verification and monitoring of the Islamic Republic of Iran's JCPOA nuclear related commitments in the amount of €1.1 million are integrated in each year of the 2018–2019 biennium. The increase related to the JCPOA accounts for 0.3% of the real growth proposed for 2018; the total real growth proposed for 2018 is 1.1%.

4. The 2030 Agenda for Sustainable Development recognizes the role of science, technology and innovation as essential enablers for development and places the priority on partnerships as a critical means of implementation. Nuclear techniques are being used to address many of these development challenges, including those concerning, hunger, human health, energy, and climate change. The Agency is closely working with Member States and supports them, mainly through its technical cooperation projects with contribution from a wide range of its programmatic activities, in their efforts to achieve the Sustainable Development Goals (SDGs).

5. Recognizing the Agency's statutory objective of seeking to "accelerate and enlarge the contribution of atomic energy to peace, health and prosperity throughout the world", and the important contribution of its work in support of the SDGs, appropriate emphasis is placed on the Agency's activities supporting the implementation of the SDGs in Member States.

6. For 2018, a total Regular Budget of €370.5 million is proposed, which represents an overall increase of €4.2 million or 1.2% over 2017. This includes a price adjustment of 0.1%.

7. The operational Regular Budget for 2018 is proposed at €362.5 million, including price adjustment (€4.3 million increase) and the capital Regular Budget is retained at €8.0 million (€8.1 million including price adjustment).

8. For 2019 the additional integration of €1.1 million for JCPOA related funding is already foreseen at this stage. Any additional significant programme changes and the price adjustment for 2019 will be presented in the draft budget update for 2019.

9. All figures in this document are presented in euros, unless otherwise specified.

Priorities[4]

10. *The Agency's Programme and Budget 2018–2019* was prepared with the following ongoing priorities identified by the Director General:

- Technical cooperation including the Programme of Action for Cancer Therapy

[4] Percentage increases presented in relation to 2017 prices.

(PACT) with the highest percentage increase among all Major Programmes — 2.9% increase over 2017 (€25.5 million in the 2018 Regular Budget);

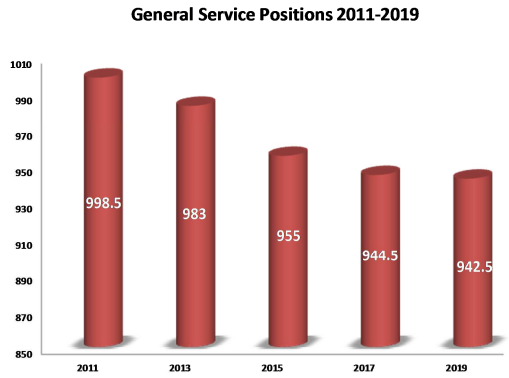
- Nuclear Safety and Security — 1.3% increase over 2017 (€35.6 million in the 2018 Regular Budget including the strengthening of radiation monitoring services and the capacity of the Radiation Safety and Nuclear Security Regulator as well as regularization of positions in Nuclear Security);
- Verification and monitoring in the Islamic Republic of Iran in light of United Nations Security Council resolution 2231 (2015) — €1.1 million in the 2018 Regular Budget (0.3% of the total real growth and 0.8% of the real growth of Major Programme 4), and additional €1.1 million in the 2019 Regular Budget (see *The Agency's Budget Update for 2017, (*GC (60)/2));
- The Renovation of the Nuclear Applications Laboratories (ReNuAL+) in Seibersdorf focusing on the elements in the original ReNuAL plan that could not be accommodated — €2.0 million each in the 2018 and 2019 capital Regular Budget; and
- Nuclear Energy — 1.1% increase over 2017 (€39.8 million in the 2018 Regular Budget and the establishment of the new Subprogramme 1.2.5 Decommissioning and Environmental Remediation.

Efficiencies

11. The Secretariat continued to pursue efficiency improvement initiatives and austerity measures, with the following focus:

- Continued prioritization of travel, including that of senior managers;
- Expanded use of standard equipment in all areas, including safeguards instrumentation, making use of economies of scale and lower maintenance costs;
- Use of innovative tools such as video screening for recruitment of highly qualified personnel;
- Continued optimization of the use of information technology (IT);
- Further rationalized workload, through the use of the Agency-wide Information System for Programme Support (AIPS).

12. The number of General Service positions is to be further reduced by the end of 2019 compared with 2017, resulting in a total reduction of 56 General Services positions since 2011. This reflects an overall reduction of 6% compared with the period prior to the implementation of AIPS. On the other hand, the increasing demand for General Services positions to carry out activities in relation to the implementation of technical cooperation projects and the technical work, such as at laboratories, limits the room for further reduction.



13. AIPS implementation is almost complete. The effort of implementing the Enterprise Resource Planning (ERP) and realigning business processes is continuing to realize benefits through the use of optimized workflows, the reduction of administrative burden and the reduced requirement for support functions (e.g. through fully automated regular payroll processing, increased use of employee and management self-service, and maximizing the use of electronic approvals).

14. The decisions taken by the United Nations General Assembly at its 70th session regarding the report of the International Civil

Service Commission (ICSC) for the year 2015[5] have an impact on the compensation package and conditions of employment of staff in the Professional and higher categories of the Agency, some of which were subject to decision by the Board of Governors in 2016. As a result, an estimated cost reduction of €0.3 million is anticipated in 2018, compared with the estimated cost in 2017. Furthermore, in 2019, an estimated cost reduction of €0.2 million is anticipated, compared with the estimated cost in 2018. These reductions have been taken into account in the preparation of this proposal.

The pursuit of efficiencies continued during the preparation of the 2018–2019 budget, building on past achievements and identifying new areas where efficiencies can be realized and productivity increased.

Synergies

15. The Agency recognizes the importance of internal and inter-organizational synergies for ensuring efficient and effective programme delivery. It will make a concerted effort to leverage interactions and cooperation both within the Agency and with external counterparts. In doing so, the Agency will continue to take advantage of strategic directions, core competencies and lessons learned, and to avoid duplication of programmatic effort.

16. The Agency seeks internal as well as external synergies to serve Member States collectively, based on a one-house approach.

17. The internal cooperation is traditionally seen as technical backstopping provided by Major Programmes 1, 2, 3 and 5 to the design and implementation of the technical cooperation programme (TCP) managed by Major Programme 6. The interaction among all Major Programmes is manifested in coordinated research activities and in technologies, procedures and standards developed notably by Major Programmes 1, 2 and 3, the results of which often feed into the technical knowledge and capacity transferred to Member States through the TCP. Services provided by Major Programme 3 contribute to the safe use of nuclear technologies supported by Major Programmes 1 and 2. All major programmes work together for providing assistance to Member States considering the introduction or expansion of nuclear power.

18. Various internal mechanisms such as the Technical Cooperation Technical Departments Group have been making a useful contribution to facilitate the alignment and close coordination of activities among Major Programmes.

19. The Agency will continue to work with external counterparts. For example, collaboration with Organisation for Economic Co-operation and Development Nuclear Energy Agency (OECD/NEA) will continue in a number of key areas including the production of a joint report every two years on uranium resources, production and demand. The Agency also interacts with several other international organizations working in the areas of energy and climate change.

20. Efforts to strengthen relationships with key partners will continue, in particular with the Food and Agriculture Organization of the United Nations (FAO) (through the Joint FAO/IAEA Division of Nuclear Techniques in

[5] The full text of the ICSC report can be found in Official Records of the United Nations General Assembly, Seventieth Session, Supplement No. 30 (document A/70/30).

Food and Agriculture), the World Health Organization (WHO), and the United Nations Environment Programme (UNEP). Cooperation with WHO has been strengthened through the Agency's efforts to respond to the outbreaks of Ebola and Zika viruses.

21. The Agency also cooperates with WHO and the International Labour Organization (ILO) in the area of radiation protection. The Agency develops safety standards using information from the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR). In the area of preparedness and response to nuclear and radiological incidents and emergencies, the Agency works closely with 18 international intergovernmental organizations within the framework of the Inter-Agency Committee on Radiological and Nuclear Emergencies (IACRNE). In accordance with General Conference resolutions and Board of Governors decisions, the Agency plays a central role in ensuring the coordination of nuclear security activities with the United Nations in particular those undertaken in accordance with United Nations Security Council resolution 1540, as well as other organizations and initiatives involved in nuclear security, in accordance with the respective mandates of the bodies involved. Promotion of the Amendment to the Convention on the Physical Protection of Nuclear Material (CPPNM) takes full account of the responsibilities of the United Nations Office on Drugs and Crime (UNODC) as they relate to the criminalization aspects dealt with in international conventions.

22. There is close cooperation between the Agency and the State and regional systems of accounting for and control of nuclear material (SSACs/RSACs), which are key components of safeguards agreements and are essential for effective and efficient safeguards implementation. The Agency continues to rely on Member State Support Programmes (MSSPs) for implementation of its research and development programme for nuclear verification, and on the Network of Analytical Laboratories (NWAL) which includes institutions from Member States and the European Commission for the provision of analytical support to safeguards.

23. The involvement in top-level coordinating bodies such as the United Nations System Chief Executives Board for Coordination (CEB) and the High-Level Committee on Management (HLCM) will provide opportunities to take advantage of synergies that exist with other United Nations organizations and to keep abreast of the latest system–wide management best practices. The Agency also cooperates with other United Nations organizations in human resources, procurement, security and IT through the sharing of best practices and the development of common approaches.

24. Technical cooperation projects, where relevant and appropriate, are developed and implemented in coordination and consultation with relevant United Nations agencies and development organizations. The Agency is increasingly involved in the United Nations Development Assistance Framework (UNDAF) development processes and has co-signed 46 documents. This allows the Agency to identify areas where joint programming with United Nations stakeholders can achieve a greater socioeconomic impact and where it contributes to Member States' efforts to the achievement of SDGs. The Agency has increased its consultation and coordination efforts and in some cases has concluded practical arrangements with partners, including FAO, the United Nations Industrial Development Organization (UNIDO), the United Nations Children's Fund (UNICEF), the United Nations Educational, Scientific and Cultural Organization (UNESCO), the United Nations Convention to Combat Desertification UNCCD), UNEP, the Abdus Salam International Centre for Theoretical Physics (ICTP), and the International Centre for Biosaline Agriculture (ICBA). Furthermore, technical cooperation projects in radiation medicine for cancer diagnosis and treatment are complemented by joint IAEA–WHO activities in the area of cancer control through PACT.

Partnerships and Resource Mobilization

25. The implementation by the Agency of the Strategic Guidelines on Partnerships and Resource Mobilization (GOV/2015/35), approved by the Board of Governors in June 2015 has been contributing to ensure a more coordinated and comprehensive approach to partnerships and resource mobilization activities.

26. The Agency will continue to seek opportunities to mobilize resources and expand its partnerships, including with the private sector, in order to increase the achievements of the Agency's objectives, which may include strategic, programmatic and/or operational goals.

Medium Term Strategy[6]

27. The Medium Term Strategy (MTS) 2018–2023 was prepared through a joint consultation process among Member States and the Secretariat. The MTS states that, in line with the Agency's Statute and subject to the decisions of the Agency's Policy-Making Organs, which are the basis and the guidance for the Agency's activities, the MTS 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 MTS 2018–2023 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:

Medium Term Strategy Objectives

A. Facilitating access to nuclear power and other nuclear technologies.

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

C. Improving nuclear safety and security.

D. Providing effective technical cooperation.

E. Delivering effective and efficient Agency safeguards.

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

[6] The Board of Governors, at its 1450th meeting, on 17 November 2016, took note of the Medium Term Strategy 2018–2023.

Results Based Management

28. One of the attributes of the results based management (RBM) approach for performance assessment is to quantify the achievement of the planned outcomes. Outcomes are measured against the respective baseline and target established during the planning stage using quantitative performance indicators. This allows comparing the results of several cycles and increases discipline in planning for results, as managers have to think in advance, measuring and collecting actual figures for reporting.

29. In line with best practices in the United Nations system, the Secretariat continued to apply the RBM approach and specific, measurable, achievable, relevant and time-bound (SMART) performance indicators to achieve effective programme performance assessment.

30. Risk management is a fundamental part of results based management. It refers to the identification and mitigation of potential events, both internal and external that might negatively affect the Agency's ability to deliver its outputs, achieve its outcomes or meet its objectives.

31. The Agency continues to implement an organization-wide risk management system to ensure effective risk management. It has an established official risk register that is periodically reviewed and updated, and the assessed risks are centrally recorded. Risk management is fully integrated with major Agency processes — including strategic planning, programme and budget development and work planning — to ensure consistent identification, consideration and mitigation of risks in decision making.

SMART:

- *Specific: The goals are clear and unambiguous.*
- *Measurable: The performance indicators help to assess progress towards successful completion.*
- *Achievable: The goals and performance indicators are realistic and attainable — neither out of reach nor below standard performance.*
- *Relevant: The goals are consistent with the larger, general objectives of the organization.*
- *Time-bound: The assessment is linked to a specific time frame.*

I.2 Financial Overview

Total Resources

32. The Agency's total resources consist of the Regular Budget, extrabudgetary resources and resources for the technical cooperation programme (TCP). For the biennium 2018–2019, the Agency's total resources amount to €1 101.3 million at 2018 prices.

2018-2019 Total Resources at a Glance (in millions)

Funding Source	2018	2019	Total
Operational Regular Budget	362.5	363.4	725.9
Capital Regular Budget	8.1	8.1	16.1
Operational Unfunded	75.8	69.1	144.8
Capital Unfunded	11.8	7.5	19.3
TC Programme	97.8	97.3	195.1
TOTAL	**555.9**	**545.3**	**1 101.3**

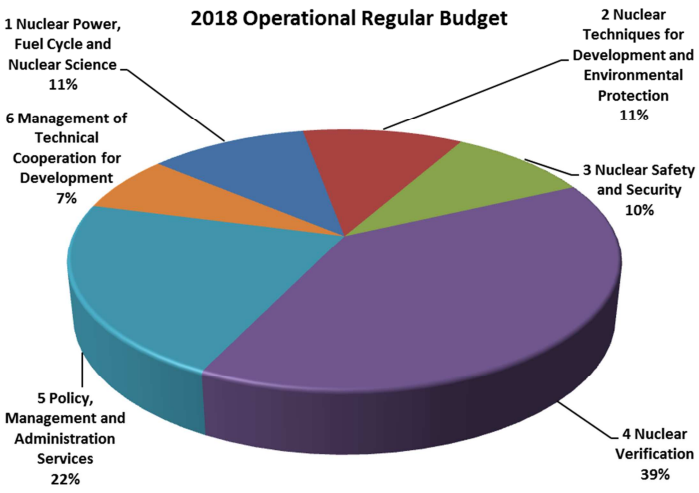
33. The Regular Budget consists of an operational component and a capital component, the latter to fund major infrastructure investments in line with the major capital investment plan. Regular Budget estimates, in accordance with the structure of the Agency's programme of work, are presented in six Major Programmes.

34. The Agency continues to rely on extrabudgetary funds, mostly from Member States, to carry out its activities for which funding is not foreseen in the Regular Budget. For 2018, currently unfunded activities in the Regular Budget for which extrabudgetary resources would be required amount to €75.8 million. The categories previously shown as Unfunded and Extrabudgetary have been combined into one, and now shown as Unfunded[7] in all budget tables of this document. This representation of unfunded financial needs has been applied to both the operational and capital sections of the budget.

35. For the TCP, €97.8 million are expected to be available in 2018 — €78.8 million for estimated core project funding, supplemented by €2.0 million of National Participation Costs and €17.0 million of extrabudgetary contributions in support of the TCP. For 2019, a total amount of €97.3 million is expected.

Operational Regular Budget Resources

36. *The Agency's Programme and Budget 2018–2019* has been prepared using a two-step approach, as in previous years. The first stage involved setting of budget ceilings at 95% of the 2017 budget. The aim was to identify efficiencies and low priority activities that could be discontinued or reduced. In the second stage of the process, final budget ceilings were established for each Major Programme to provide funding for new high priority activities or to expand established ones. The increase in 2019 is due to the completion of the integration into the Regular Budget of the funding for the Agency's verification and monitoring activities of Iran's nuclear-related commitments as set out in the JCPOA, as agreed by Member States. The chart below and the table overleaf depict the operational Regular Budget.



[7] Programme Support Costs (PSC) are included under Unfunded for each year of the biennium 2018–2019 as an integral part of the estimate for the activities funded through extrabudgetary contributions.

2018-2019 Operational Regular Budget (in millions)

Major Programme	2018	2019
1 Nuclear Power, Fuel Cycle and Nuclear Science	39.8	39.8
2 Nuclear Techniques for Development and Environmental Protection	40.5	40.5
3 Nuclear Safety and Security	35.6	35.6
4 Nuclear Verification	142.0	143.0
5 Policy, Management and Administration Services	79.1	79.0
6 Management of Technical Cooperation for Development	25.5	25.5
TOTAL	**362.5**	**363.4**

Capital Resources

37. The capital resources for 2018 have been allocated with a view to addressing the continuing capital priorities of the Agency. The following table depicts the 2018 capital Regular Budget. Details are provided in Section I.4.

2018-2019 Capital Investments (in millions)

Major Programme	2018	2019
2 Nuclear Techniques for Development and Environmental Protection	2.0	2.0
3 Nuclear Safety and Security	0.3	0.3
4 Nuclear Verification	2.0	1.0
5 Policy, Management and Administration Services	3.8	4.8
TOTAL	**8.1**	**8.1**

Other Financial Considerations

Price Adjustment

38. The overall average price adjustment for 2018 is 0.1%. This is based on three factors, applied by group of expenditure:

- No change for Professional staff costs and consultants, adjustment deferred (see below);
- Decrease for General Service staff costs of 0.7%;
- Increase for all other items of expenditure of 0.8%.

39. The overall price adjustment has been calculated using the Agency's standard three-year rolling average methodology which builds upon the concept of semi-full budgeting. This methodology takes note of the most recent developments and corrects any over/under forecasts previously planned.

40. Trends and expectations for staff costs are based on forecasts provided by the International Civil Service Commission and the Austrian minimum salary scale adjustment factor (Tariflohn), while for all other items of expenditure, the Agency uses the most recent statistical data available on the European Union Harmonised Index of Consumer Prices (HICP).

41. In light of the ongoing ICSC review of the compensation package for staff in the Professional category, the Secretariat deferred the consideration of the Professional Staff costs for 2017 in *The Agency's Budget Update for 2017*. This proposal takes into account the cost reduction impact of the decisions taken by the Board of Governors with respect to the United Nations General Assembly's decisions regarding the report of the ICSC for the year 2015.[8]

42. The ICSC, within its mandate to regulate and coordinate the conditions of service of staff in the United Nations Common System, performs periodic reviews of the salary components and uses a periodic cost-of-living survey as one of their tools. The current forecast provided by the ICSC does not include the effect of this survey, as the results of the survey for Vienna will be implemented by the ICSC in April 2017. For this reason, the effect

[8] See United Nations General Assembly resolution A/RES/70/244, and documents GOV/2016/7 and GOV/2016/54.

of the adjustment for Professional Staff costs for 2017 is not included in the current Programme and Budget. It will be captured through the rolling average methodology in *The Agency's Budget Update for 2019*, which may result in the need for adjustment of under-projection.

43. As different price adjustment factors are applied to the three groups of expenditures, as presented above, the price adjustment varies per and within major programmes depending on the mix of planned expenditure categories.

44. The Agency's price adjustment of 0.1% for 2018 is lower than most other relevant international indices for the euro area as of October 2016. For example, the International Monetary Fund World Economic Outlook predicts 1.6%. The PricewaterhouseCoopers Global Economy Watch projection is 1.4% and the European Central Bank inflation forecast is 1.6%.

Structural and Organizational Changes

45. In view of increased demand in the areas of radioactive waste management, decommissioning of nuclear facilities and management of disused radioactive sealed sources as well as on-site and off-site remediation in the event of an accident, a new Subprogramme 1.2.5 *Decommissioning and Environmental Remediation (D&ER)* is proposed in Major Programme 1. The activities will be implemented by a new Section to be established in the Division of Nuclear Fuel Cycle and Waste Technology.

After Service Health Insurance Liabilities (ASHI)

46. The Agency fulfils its obligations in respect of the financing of health insurance for former officials from the Regular Budget, on a pay-as-you-go basis. It does not currently set aside any funds to meet this long term financial liability, which amounts to €175 million.[9] Most United Nations organizations are facing the issue of funding after-service staff liabilities. The Agency's External Auditors recommended that this funding situation be addressed.

47. The Secretariat is considering addressing this issue through the establishment of an after-service staff liabilities funding mechanism. The proposal will not impact the Regular Budget for 2018–2019. Details of the after service staff liabilities, together with the relevant analysis and related proposal will be presented to Member States in due course.

Miscellaneous Income, Budget Currency and Exchange Rate

48. Compared with 2017, there is no overall significant change to the projections for reimbursable work for others and miscellaneous income.

49. The Agency's functional currency is the euro. As in the past, Regular Budget estimates have been prepared in euros, using a budget exchange rate of €1.00 to $1.00. All tables and charts in this document are in euros, based on this budget exchange rate. The Agency assesses Member States in euros and US dollars in accordance with the scale of assessment fixed by the General Conference and the required split between the two currencies. Approximately 88% of the expenditures of the Agency are in euros. The split assessment protects the Agency in the event of currency fluctuations between euros and US dollars. The Secretariat will monitor any changes in the proportion of the currency of expenditures and report to Member States if required.

Report on the Budget to the United Nations General Assembly

50. In accordance with Article XVI of the Agency's relationship agreement with the United Nations (INFCIRC/11, part I), the budget may be reviewed by the Advisory Committee on Administrative and Budgetary Questions (ACABQ), which would report on the administrative aspects thereof to the United Nations General Assembly.

[9] As contained in *The Agency's Financial Statements for 2015*, (GC(60)/3).

Table 1. The Regular Budget – By Programme and Major Programme

Programme/Major Programme	2017 Budget	2018			2018	Price Adjustment	2019	
		2018 Estimates at 2017 Prices	Variance over 2017 EUR	Variance over 2017 %	2018 Estimates at 2018 Prices		2019 Preliminary estimates at 2017 Prices	2019 Preliminary estimates at 2018 Prices
1. Nuclear Power, Fuel Cycle and Nuclear Science								
Overall Management, Coordination and Common Activities	3 300 581	3 139 314	(161 266)	(4.9%)	3 134 965	(0.1%)	3 132 394	3 127 961
Nuclear Power	8 591 037	8 692 752	101 715	1.2%	8 698 141	0.1%	8 692 711	8 698 100
Nuclear Fuel Cycle and Materials Technologies	6 896 576	7 343 778	447 202	6.5%	7 352 806	0.1%	7 343 743	7 352 362
Capacity Building and Nuclear Knowledge for Sustainable Energy Development	10 300 660	10 325 593	24 933	0.2%	10 326 191	0.0%	10 273 849	10 274 673
Nuclear Science	10 289 512	10 302 912	13 400	0.1%	10 331 978	0.3%	10 302 897	10 332 019
Major Programme 1	**39 378 365**	**39 804 349**	**425 984**	**1.1%**	**39 844 081**	**0.1%**	**39 745 594**	**39 785 115**
2. Nuclear Techniques for Development and Environmental Protection								
Overall Management, Coordination and Common Activities	7 853 122	7 830 913	(22 209)	(0.3%)	7 842 153	0.1%	7 830 523	7 841 280
Food and Agriculture	11 572 565	11 630 761	58 196	0.5%	11 653 361	0.2%	11 630 761	11 653 583
Human Health	8 371 785	8 544 238	172 453	2.1%	8 560 287	0.2%	8 544 628	8 560 738
Water Resources	3 510 039	3 598 830	88 792	2.5%	3 599 384	0.0%	3 598 830	3 599 427
Environment	6 357 212	6 435 199	77 987	1.2%	6 431 279	(0.1%)	6 435 199	6 431 279
Radioisotope Production and Radiation Technology	2 293 535	2 386 942	93 407	4.1%	2 393 070	0.3%	2 386 943	2 392 993
Major Programme 2	**39 958 257**	**40 426 883**	**468 627**	**1.2%**	**40 479 534**	**0.1%**	**40 426 884**	**40 479 300**
3. Nuclear Safety and Security								
Overall Management, Coordination and Common Activities	3 981 786	3 921 588	(60 198)	(1.5%)	3 914 342	(0.2%)	3 912 182	3 904 844
Incident and Emergency Preparedness and Response	4 298 741	4 326 665	27 924	0.6%	4 331 663	0.1%	4 326 665	4 330 741
Safety of Nuclear Installations	10 391 723	10 370 791	(20 932)	(0.2%)	10 369 995	(0.0%)	10 370 792	10 370 445
Radiation and Transport Safety	7 261 282	7 415 239	153 957	2.1%	7 408 980	(0.1%)	7 415 239	7 408 980
Radioactive Waste Management and Environmental Safety	3 715 383	3 742 346	26 963	0.7%	3 744 708	0.1%	3 742 346	3 744 708
Nuclear Security	5 513 932	5 847 081	333 149	6.0%	5 842 977	(0.1%)	5 847 081	5 842 977
Major Programme 3	**35 162 847**	**35 623 710**	**460 864**	**1.3%**	**35 612 666**	**(0.0%)**	**35 614 305**	**35 602 695**
4. Nuclear Verification								
Overall Management, Coordination and Common Activities	14 492 940	14 271 177	(221 763)	(1.5%)	14 301 527	0.2%	14 316 332	14 346 815
Safeguards Implementation	116 775 755	121 008 739	4 232 984	3.6%	121 082 208	0.1%	122 443 693	122 515 684
Other Verification Activities	457 377	1 739 638	1 282 261	280.4%	1 739 630	(0.0%)	2 790 484	2 790 563
Development	7 566 179	4 836 179	(2 730 001)	(36.1%)	4 837 563	0.0%	3 352 524	3 354 895
Major Programme 4	**139 292 251**	**141 855 733**	**2 563 482**	**1.8%**	**141 960 927**	**0.1%**	**142 903 032**	**143 007 957**
5. Policy, Management and Administration Services								
Policy, Management and Administration Services	79 557 324	78 961 859	(595 465)	(0.7%)	79 048 022	0.1%	78 947 901	79 034 960
Major Programme 5	**79 557 324**	**78 961 859**	**(595 465)**	**(0.7%)**	**79 048 022**	**0.1%**	**78 947 901**	**79 034 960**
6. Management of Technical Cooperation for Development								
Management of Technical Cooperation for Development	24 873 650	25 586 000	712 351	2.9%	25 534 194	(0.2%)	25 579 883	25 528 032
Major Programme 6	**24 873 650**	**25 586 000**	**712 351**	**2.9%**	**25 534 194**	**(0.2%)**	**25 579 883**	**25 528 032**
Operational Regular Budget	**358 222 694**	**362 258 535**	**4 035 842**	**1.1%**	**362 479 424**	**0.1%**	**363 217 599**	**363 438 060**
Major Capital Investment Funding Requirements								
Capital Regular Budget	**8 100 584**	**8 000 000**	**(100 584)**	**(1.2%)**	**8 059 381**	**0.7%**	**8 000 000**	**8 059 381**
Total Agency Programmes	**366 323 278**	**370 258 535**	**3 935 258**	**1.1%**	**370 538 805**	**0.1%**	**371 217 599**	**371 497 441**
Reimbursable Work for Others	2 697 812	2 760 765	62 953	2.3%	2 782 851	0.8%	2 760 765	2 782 851
Total Regular Budget	**369 021 090**	**373 019 300**	**3 998 211**	**1.1%**	**373 321 656**	**0.1%**	**373 978 364**	**374 280 292**
Less Miscellaneous Income	3 247 812	3 310 765	62 953	2.3%	3 332 851	0.8%	3 310 765	3 332 851
Assessment on Member States	**365 773 278**	**369 708 535**	**3 935 257**	**1.1%**	**369 988 805**	**0.1%**	**370 667 599**	**370 947 441**

Table 2. The Regular Budget – Summary of Income

	2017 Budget at 2017 Prices	2018 Estimates at 2017 Prices	Variance 2018 over 2017	2018 Estimates at 2018 Prices	2019 Estimates at 2018 Prices
Operational Regular Budget[1]	357 672 694	361 708 535	4 035 841	361 929 424	362 888 060
Capital Regular Budget	8 100 584	8 000 000	(100 584)	8 059 381	8 059 381
Assessed Contributions on Member States	**365 773 278**	**369 708 535**	**3 935 257**	**369 988 805**	**370 947 441**
Miscellaneous Income					
Reimbursable Work for Others					
Printing Services	420 725	465 000	44 275	468 720	468 720
Medical Services	868 658	840 947	(27 711)	847 675	847 675
Nuclear Fusion Journal	192 531	327 154	134 623	329 771	329 771
Laboratory Services	212 737	125 000	(87 737)	126 000	126 000
Amounts Recoverable Under Safeguards Agreements	1 003 161	1 002 664	(497)	1 010 685	1 010 685
Subtotal Reimbursable Work for Others	**2 697 812**	**2 760 765**	**62 953**	**2 782 851**	**2 782 851**
Other					
Publications of the Agency – Other	150 000	150 000	-	150 000	150 000
Laboratory Income	300 000	300 000	-	300 000	300 000
Investment and Interest Income	100 000	100 000	-	100 000	100 000
Subtotal Other	**550 000**	**550 000**	**-**	**550 000**	**550 000**
Total Miscellaneous Income	**3 247 812**	**3 310 765**	**62 953**	**3 332 851**	**3 332 851**
Total Regular Budget Income	**369 021 090**	**373 019 300**	**3 998 210**	**373 321 656**	**374 280 292**

[1] Does not include estimates for Other Miscellaneous income.

Table 3 (a). Total Resource Requirements for 2018 – By Programme and Major Programme (at 2018 prices)

Programme / Major Programme	Regular Budget		Unfunded		TC Programme	Total
	Operational	Capital	Operational	Capital		
1. Nuclear Power, Fuel Cycle and Nuclear Science						
Overall Management, Coordination and Common Activities	3 134 965	-	104 297	-	-	3 239 263
Nuclear Power	8 698 141	-	2 142 196	-	5 190 369	16 030 705
Nuclear Fuel Cycle and Materials Technologies	7 352 806	-	3 791 523	-	2 330 503	13 474 833
Capacity Building and Nuclear Knowledge for Sustainable Energy Development	10 326 191	-	518 543	-	1 614 443	12 459 176
Nuclear Science	10 331 978	-	1 405 616	-	5 492 863	17 230 457
Major Programme 1	**39 844 081**	**-**	**7 962 176**	**-**	**14 628 178**	**62 434 435**
2. Nuclear Techniques for Development and Environmental Protection						
Overall Management, Coordination and Common Activities	7 842 153	2 011 381	104 297	4 988 204	-	14 946 035
Food and Agriculture	11 653 361	-	4 343 535	-	13 327 571	29 324 467
Human Health	8 560 287	-	328 872	-	26 659 662	35 548 821
Water Resources	3 599 384	-	-	-	2 456 133	6 055 517
Environment	6 431 279	-	1 297 754	-	3 746 442	11 475 475
Radioisotope Production and Radiation Technology	2 393 070	-	-	-	10 649 715	13 042 785
Major Programme 2	**40 479 534**	**2 011 381**	**6 074 459**	**4 988 204**	**56 839 522**	**110 393 100**
3. Nuclear Safety and Security						
Overall Management, Coordination and Common Activities	3 914 342	-	1 728 719	-	-	5 643 061
Incident and Emergency Preparedness and Response	4 331 663	-	2 896 028	-	2 427 989	9 655 681
Safety of Nuclear Installations	10 369 995	-	5 624 520	-	6 210 965	22 205 481
Radiation and Transport Safety	7 408 980	270 144	2 320 723	-	8 958 293	18 958 139
Management of Radioactive Waste	3 744 708	-	2 846 294	-	8 246 451	14 837 453
Nuclear Security	5 842 977	-	21 332 206	-	-	27 175 183
Major Programme 3	**35 612 666**	**270 144**	**36 748 490**	**-**	**25 843 698**	**98 474 998**
4. Nuclear Verification						
Overall Management, Coordination and Common Activities	14 301 527	-	72 399	-	-	14 373 926
Safeguards Implementation	121 082 208	-	17 575 483	-	-	138 657 691
Other Verification Activities	1 739 630	-	5 103 215	-	-	6 842 845
Development	4 837 563	2 016 000	1 067 014	3 931 200	-	11 851 777
Major Programme 4	**141 960 927**	**2 016 000**	**23 818 112**	**3 931 200**	**-**	**171 726 239**
5. Policy, Management and Administration Services						
Policy, Management and Administration Services	79 048 022	3 761 856	1 050 965	2 898 000	500 401	87 259 244
Major Programme 5	**79 048 022**	**3 761 856**	**1 050 965**	**2 898 000**	**500 401**	**87 259 244**
6. Management of Technical Cooperation for Development						
Management of Technical Cooperation for Development	25 534 194	-	104 297	-	-	25 638 491
Major Programme 6	**25 534 194**	**-**	**104 297**	**-**	**-**	**25 638 491**
Total Agency Programmes	**362 479 424**	**8 059 381**	**75 758 498**	**11 817 404**	**97 811 800**	**555 926 507**
Reimbursable Work for Others	2 782 851	-	-	-	-	2 782 851
Total	**365 262 275**	**8 059 381**	**75 758 498**	**11 817 404**	**97 811 800**	**558 709 358**

Table 3 (b). Total Resource Requirements for 2019 – By Programme and Major Programme (at 2018 prices)

Programme / Major Programme	Regular Budget		Unfunded		TC Programme	Total
	Operational	Capital	Operational	Capital		
1. Nuclear Power, Fuel Cycle and Nuclear Science						
Overall Management, Coordination and Common Activities	3 127 961	-	104 297	-	-	3 232 259
Nuclear Power	8 698 100	-	1 500 601	-	5 161 714	15 360 415
Nuclear Fuel Cycle and Materials Technologies	7 352 362	-	2 924 963	-	2 317 637	12 594 962
Capacity Building and Nuclear Knowledge for Sustainable Energy Development	10 274 673	-	641 612	-	1 605 530	12 521 815
Nuclear Science	10 332 019	-	1 306 685	-	5 462 538	17 101 243
Major Programme 1	**39 785 115**	**-**	**6 478 159**	**-**	**14 547 419**	**60 810 693**
2. Nuclear Techniques for Development and Environmental Protection						
Overall Management, Coordination and Common Activities	7 841 280	2 011 381	104 297	5 089 004	-	15 045 962
Food and Agriculture	11 653 583	-	4 052 324	-	13 253 992	28 959 899
Human Health	8 560 738	-	328 872	-	26 512 479	35 402 089
Water Resources	3 599 427	-	-	-	2 442 573	6 042 000
Environment	6 431 279	-	1 052 341	-	3 725 759	11 209 380
Radioisotope Production and Radiation Technology	2 392 993	-	-	-	10 590 920	12 983 913
Major Programme 2	**40 479 300**	**2 011 381**	**5 537 835**	**5 089 004**	**56 525 722**	**109 643 243**
3. Nuclear Safety and Security						
Overall Management, Coordination and Common Activities	3 904 844	302 400	1 728 719	-	-	5 935 963
Incident and Emergency Preparedness and Response	4 330 741	-	2 348 097	-	2 414 585	9 093 422
Safety of Nuclear Installations	10 370 445	-	5 535 017	-	6 176 676	22 082 138
Radiation and Transport Safety	7 408 980	-	2 200 616	-	8 908 836	18 518 431
Management of Radioactive Waste	3 744 708	-	2 797 688	-	8 200 924	14 743 320
Nuclear Security	5 842 977	-	19 708 265	-	-	25 551 242
Major Programme 3	**35 602 695**	**302 400**	**34 318 401**	**-**	**25 701 020**	**95 924 517**
4. Nuclear Verification						
Overall Management, Coordination and Common Activities	14 346 815	-	36 671	-	-	14 383 486
Safeguards Implementation	122 515 684	-	16 708 761	-	-	139 224 445
Other Verification Activities	2 790 563	-	4 048 598	-	-	6 839 161
Development	3 354 895	1 008 000	1 067 014	1 008 000	-	6 437 909
Major Programme 4	**143 007 957**	**1 008 000**	**21 861 045**	**1 008 000**	**-**	**166 885 002**
5. Policy, Management and Administration Services						
Policy, Management and Administration Services	79 034 960	4 737 600	769 203	1 395 072	497 638	86 434 474
Major Programme 5	**79 034 960**	**4 737 600**	**769 203**	**1 395 072**	**497 638**	**86 434 474**
6. Management of Technical Cooperation for Development						
Management of Technical Cooperation for Development	25 528 032	-	104 297	-	-	25 632 330
Major Programme 6	**25 528 032**	**-**	**104 297**	**-**	**-**	**25 632 330**
Total Agency Programmes	**363 438 060**	**8 059 381**	**69 068 941**	**7 492 076**	**97 271 800**	**545 330 258**
Reimbursable Work for Others	2 782 851	-	-	-	-	2 782 851
Total	**366 220 911**	**8 059 381**	**69 068 941**	**7 492 076**	**97 271 800**	**548 113 109**

I.3 Programme and Budget Overview by Major Programme

Major Programme 1: Nuclear Power, Fuel Cycle and Nuclear Science

51. Major Programme 1 provides scientific and technical support to Member States through: the provision of guidance; technical reports; review services; facilitating discussion on relevant topics; and the dissemination of data, information and knowledge. It also designs and, in partnership with Major Programme 6, delivers training and helps interested Member States to build capacity and to develop infrastructure necessary for managing various phases of a nuclear programme.

52. For Member States opting to use nuclear power for mitigating the effects of climate change and following the Paris Agreement, in 2015, nuclear power could become an integral component in their energy mix supporting energy security and the achievement of relevant Sustainable Development Goals (SDGs), in particular SDG 7 "Affordable and Clean Energy" and SDG 13 "Climate Action". The Agency will continue to support interested Member States to assess their future energy requirements and to evaluate and understand the potential for nuclear power to be part of their energy strategies, including in the context of achieving SDGs.

53. The Major Programme provides support for Member States considering, embarking on or expanding nuclear power programmes as well as those Member States with operating nuclear power plants to improve performance, achieve better life management, as well as ensure safe, secure, efficient and reliable long term operation. Support will continue to be provided for the development and deployment of small and medium sized or modular and innovative reactor systems and associated fuel cycles; along with the non-electric applications of nuclear energy and cogeneration technologies.

54. The Major Programme activities support uranium exploration, mining and milling. Efforts will continue to contribute to fuel cycle activities, especially in areas such as spent fuel integrity, design vulnerabilities, defueling and storage. Technical assistance will be strengthened for radioactive waste management (RWM), decommissioning of nuclear facilities and management of disused radioactive sealed sources as well as on-site and off-site remediation in the event of an accident. In view of increased demand in these areas, the new Subprogramme 1.2.5 Decommissioning and Environmental Remediation (D&ER) will be created and implemented by a new Section to be established in the Division of Nuclear Fuel Cycle and Waste Technology.

55. The Agency will continue its support to Member States with an interest in building, operating or accessing research reactors — including via regional centres, and upon request to those transitioning away from the use of high enriched uranium (HEU) in research reactors, where technically and economically feasible.

56. The Agency's support will continue in the field of nuclear knowledge management, including information management, dissemination and preservation. The Agency will remain a reliable source of atomic, molecular and nuclear data. Training and the facilitation of experiments using various types of particle accelerator and other nuclear instrumentation will continue. With progress on the International Thermonuclear Experimental Reactor (ITER), the Agency will continue to support involvement of Member States in fusion technology and to facilitate links with partners in the ITER project. Collaboration will continue with the Abdus Salam International Centre for Theoretical Physics (ICTP), in Trieste, Italy, to support education and training for scientists, especially those from developing countries.

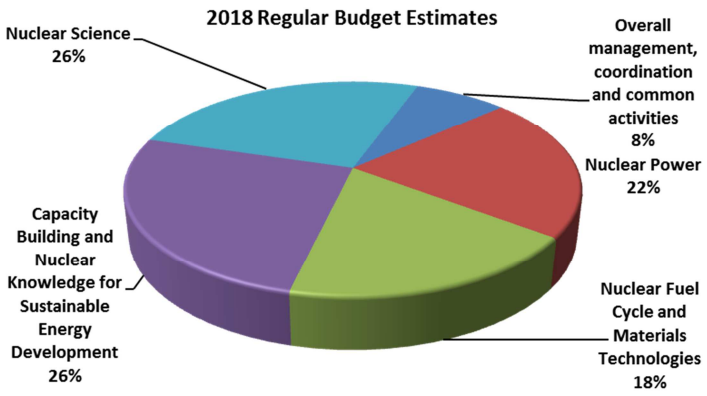


Table 4. Major Programme 1 – Nuclear Power, Fuel Cycle and Nuclear Science

Summary of Regular Budget Resources for the Biennium (excluding Major Capital Investments)

Subprogramme / Programme		2017 Budget	2018 Estimates at 2017 prices	2018 Variance over 2017 EUR	2018 Variance over 2017 %	2019 Preliminary Estimates at 2017 prices	2019 Variance over 2018 EUR	2019 Variance over 2018 %
1.0 Overall Management, Coordination and Common Activities	↓	**3 300 581**	**3 139 314**	***(161 266)***	***(4.9%)***	**3 132 394**	***(6 921)***	***(0.2%)***
1.1.1 Strengthening Integrated Engineering Support for Nuclear Power Programmes	–	1 600 257	1 599 740	*(517)*	*(0.0%)*	1 599 733	*(7)*	*(0.0%)*
1.1.2 Management and Human Resource Development for Nuclear Power	–	1 005 666	1 006 912	*1 246*	*0.1%*	1 006 907	*(5)*	*(0.0%)*
1.1.3 Infrastructure and Planning for New Nuclear Power Programmes	↑	2 478 077	2 546 564	*68 487*	*2.8%*	2 546 553	*(12)*	*(0.0%)*
1.1.4 International Project on Innovative Nuclear Reactors and Fuel Cycles	↑	1 095 164	1 121 636	*26 472*	*2.4%*	1 121 631	*(5)*	*(0.0%)*
1.1.5 Technology Development for Advanced Reactors and Non-Electric Applications	–	2 411 873	2 417 899	*6 026*	*0.2%*	2 417 888	*(11)*	*(0.0%)*
1.1 Nuclear Power Total	–	**8 591 037**	**8 692 752**	***101 715***	***1.2%***	**8 692 711**	***(40)***	***(0.0%)***
1.2.1 Uranium Resources and Processing	↑	1 252 800	1 328 872	*76 072*	*6.1%*	1 260 635	*(68 237)*	*(5.1%)*
1.2.2 Nuclear Power Reactor Fuel	↓	838 630	807 054	*(31 576)*	*(3.8%)*	854 979	*47 926*	*5.9%*
1.2.3 Management of Spent Fuel from Nuclear Power Reactors	↓	1 297 326	1 243 171	*(54 155)*	*(4.2%)*	1 263 466	*20 295*	*1.6%*
1.2.4 Technology for Radioactive Waste Management and Disposal	↓	3 507 820	2 764 711	*(743 109)*	*(21.2%)*	2 764 698	*(13)*	*(0.0%)*
1.2.5 Decommissioning and Environmental Remediation	↑	-	1 199 970	*1 199 970*	-	1 199 965	*(6)*	*(0.0%)*
1.2 Nuclear Fuel Cycle, Waste Management and Research Reactors Total	↑	**6 896 576**	**7 343 778**	***447 202***	***6.5%***	**7 343 743**	***(35)***	***(0.0%)***
1.3.1 Energy Modelling, Data and Capacity Building	–	1 820 368	1 838 280	*17 912*	*1.0%*	1 838 271	*(9)*	*(0.0%)*
1.3.2 Energy Economy Environment (3E) Analysis	–	1 525 110	1 553 486	*28 377*	*1.9%*	1 553 480	*(7)*	*(0.0%)*
1.3.3 Nuclear Knowledge Management (NKM)	–	2 309 161	2 286 118	*(23 043)*	*(1.0%)*	2 286 108	*(10)*	*(0.0%)*
1.3.4 Nuclear Information	–	4 646 022	4 647 708	*1 687*	*0.0%*	4 595 989	*(51 719)*	*(1.1%)*
1.3 Capacity Building and Nuclear Knowledge for Sustainable Energy Development Total	–	**10 300 660**	**10 325 593**	***24 933***	***0.2%***	**10 273 849**	***(51 744)***	***(0.5%)***
1.4.1 Atomic and Nuclear Data	↑	2 838 215	2 933 196	*94 981*	*3.3%*	2 933 181	*(15)*	*(0.0%)*
1.4.2 Research Reactors	↑	1 707 428	1 766 144	*58 716*	*3.4%*	1 766 136	*(8)*	*(0.0%)*
1.4.3 Accelerator Applications and Nuclear Instrumentation	–	2 511 244	2 496 984	*(14 260)*	*(0.6%)*	2 497 016	*32*	*0.0%*
1.4.4 Nuclear Fusion Research and Technology	–	851 730	839 952	*(11 778)*	*(1.4%)*	839 938	*(14)*	*(0.0%)*
1.4.5 Support to the Abdus Salam International Centre for Theoretical Physics (ICTP)	↓	2 380 895	2 266 636	*(114 258)*	*(4.8%)*	2 266 626	*(11)*	*(0.0%)*
1.4 Nuclear Science Total	–	**10 289 512**	**10 302 912**	***13 400***	***0.1%***	**10 302 897**	***(15)***	***(0.0%)***
Total for Nuclear Power, Fuel Cycle and Nuclear Science	–	**39 378 365**	**39 804 349**	***425 984***	***1.1%***	**39 745 594**	***(58 756)***	***(0.1%)***

Major Programme 2: Nuclear Techniques for Development and Environmental Protection

57. Major Programme 2 supports the peaceful uses of nuclear science and applications. The work of the Programme supports Member State efforts to achieve the Sustainable Development Goals (SDGs). Activities will continue in the Programme's five thematic areas: food and agriculture (SDGs 2 and 15); human health (SDG 3); water resources (SDG 6); environment (SDGs 13 and 14); and radioisotope production and radiation technology (SDG 9). Demand for assistance in all areas is increasing, particularly in efforts to improve food security and safety, reduce environmental degradation and protect human health.

58. The use of radiation technology to improve health care, food safety, industrial growth and environmental protection is another area of increasing demand, as is establishing response capabilities relating to radiological and non-radiological emergencies.

59. The Programme's laboratories at IAEA Headquarters and in Monaco and Seibersdorf remain an essential vehicle for programme delivery, and ensuring that the laboratories are able to meet the changing needs of Member States is a priority. Enhancing quality assurance continues to be a priority for the safe and efficient operation of the laboratories. Ongoing efforts to strengthen quality assurance will enable more of the laboratories to achieve and maintain high levels of proficiency demonstrate competence and serve as reference laboratories for Member States.

60. Partnerships will continue to be an important way to strengthen programmatic activities and to engage with Member States. Key partnerships with United Nations organizations will be strengthened, such as those with the Food and Agriculture Organization of the United Nations (FAO) and the World Health Organization (WHO). Networks of Member State scientific and research institutions will be expanded to extend their global reach. The IAEA Collaborating Centre scheme remains a valuable mechanism for working jointly with Member State institutions. Efforts will be made to expand the scheme and to enhance the effectiveness of existing Collaborating Centre arrangements.

61. Education and training is fundamental to this Programme, the use of online education platforms and e-learning tools will be emphasized to achieve cost savings and to reach a wider audience. To increase general public awareness of the work and contributions of this Programme, communication strategies and activities will be prioritized and strengthened.

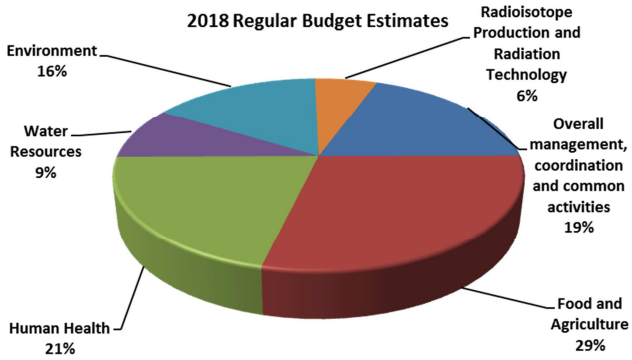


Table 5. Major Programme 2 – Nuclear Techniques for Development and Environmental Protection

Summary of Regular Budget Resources for the Biennium (excluding Major Capital Investments)

Subprogramme / Programme		2017 Budget	2018 Estimates at 2017 prices	2018 Variance over 2017 EUR	2018 Variance over 2017 %	2019 Preliminary Estimates at 2017 prices	2019 Variance over 2018 EUR	2019 Variance over 2018 %
2.0 Overall Management, Coordination and Common Activities	—	**7 853 122**	**7 830 913**	***(22 209)***	***(0.3%)***	**7 830 523**	***(390)***	***(0.0%)***
2.1.1 Sustainable Land and Water Management	—	2 157 075	2 148 889	*(8 186)*	*(0.4%)*	2 148 890	*0*	*0.0%*
2.1.2 Sustainable Intensification of Livestock Production Systems	—	2 262 719	2 254 132	*(8 587)*	*(0.4%)*	2 254 132	*0*	*0.0%*
2.1.3 Improvement of Food Safety and Food Control Systems	↑	1 652 356	1 748 198	*95 842*	*5.8%*	1 748 198	*(0)*	*(0.0%)*
2.1.4 Sustainable Control of Major Insect Pests	—	3 584 792	3 571 188	*(13 603)*	*(0.4%)*	3 571 189	*0*	*0.0%*
2.1.5 Crop Improvement for Intensification of Agricultural Production Systems	—	1 915 622	1 908 353	*(7 270)*	*(0.4%)*	1 908 353	*0*	*0.0%*
2.1 Food and Agriculture Total	—	**11 572 565**	**11 630 761**	***58 196***	***0.5%***	**11 630 761**	***0***	***0.0%***
2.2.1 Nutrition for Improved Human Health	—	1 674 148	1 701 550	*27 402*	*1.6%*	1 701 903	*353*	*0.0%*
2.2.2 Nuclear Medicine and Diagnostic Imaging	↓	2 069 302	1 971 325	*(97 977)*	*(4.7%)*	1 958 874	*(12 450)*	*(0.6%)*
2.2.3 Radiation Oncology and Cancer Treatment	—	1 832 260	1 862 097	*29 837*	*1.6%*	1 862 055	*(42)*	*(0.0%)*
2.2.4 Dosimetry and Medical Physics for Imaging and Therapy	↑	2 796 074	3 009 266	*213 192*	*7.6%*	3 021 795	*12 529*	*0.4%*
2.2 Human Health Total	↑	**8 371 785**	**8 544 238**	***172 453***	***2.1%***	**8 544 628**	***390***	***0.0%***
2.3.1 Isotope Data Networks for Hydrology and Climate Studies	↑	1 009 282	1 097 417	*88 135*	*8.7%*	1 192 315	*94 899*	*8.6%*
2.3.2 Isotope Based Assessment and Management of Water Resources	↑	1 041 082	1 218 366	*177 284*	*17.0%*	1 130 744	*(87 622)*	*(7.2%)*
2.3.3 Radio-isotope Applications for Hydrology	↓	1 459 675	1 283 048	*(176 627)*	*(12.1%)*	1 275 771	*(7 277)*	*(0.6%)*
2.3 Water Resources Total	↑	**3 510 039**	**3 598 830**	***88 792***	***2.5%***	**3 598 830**	***(0)***	***(0.0%)***
2.4.1 IAEA Reference Products for Science and Trade	↑	2 385 031	2 466 057	*81 027*	*3.4%*	2 466 057	*0*	*0.0%*
2.4.2 Nuclear Techniques to Understand Climate and Environmental Change	—	1 481 949	1 484 473	*2 523*	*0.2%*	1 484 473	*0*	*0.0%*
2.4.3 Nuclear Techniques to Monitor and Assess Pollution	—	764 896	763 654	*(1 242)*	*(0.2%)*	763 654	*0*	*0.0%*
2.4.4 Applying Analytical Techniques to Protect Biodiversity and Ecosystem services	—	1 725 336	1 721 015	*(4 321)*	*(0.3%)*	1 721 015	*0*	*0.0%*
2.4 Environment Total	—	**6 357 212**	**6 435 199**	***77 987***	***1.2%***	**6 435 199**	***0***	***0.0%***
2.5.1 Radioisotope Products for Cancer Management and Non-communicable Diseases	↑	1 053 950	1 089 825	*35 875*	*3.4%*	1 090 606	*781*	*0.1%*
2.5.2 Radiation Technology Applications in Healthcare, Industries and Environment	↑	1 239 585	1 297 117	*57 532*	*4.6%*	1 296 337	*(780)*	*(0.1%)*
2.5 Radioisotope Production and Radiation Technology Total	↑	**2 293 535**	**2 386 942**	***93 407***	***4.1%***	**2 386 943**	***0***	***0.0%***
Total for Nuclear Techniques for Development and Environmental Protection	—	**39 958 257**	**40 426 883**	***468 627***	***1.2%***	**40 426 884**	***1***	***0.0%***

Major Programme 3: Nuclear Safety and Security

62. Major Programme 3 promotes the worldwide achievement and maintenance of high levels of nuclear safety and security to protect people, society and the environment from ionizing radiation. It meets the demand for a higher level of safety at the growing number of nuclear installations — including uranium mining facilities, as well as at existing nuclear power plants and research reactors, whose average age continues to increase. It also addresses the wider use of ionizing radiation in industry, medicine and agriculture; the continuous threat of nuclear terrorism; and the accumulation of radioactive waste and spent fuel. In conducting these activities the Agency will foster a strong safety and security culture.

63. The Major Programme performs the Agency's statutory function of establishing standards of safety and providing for their application in Member States upon request and in its own operations. The Agency assists Member States in building national capacities by promoting international cooperation, and by transferring nuclear safety knowledge from States with mature nuclear energy programmes to States with emerging nuclear energy programmes, through knowledge networks.

64. The Major Programme will address priority areas from application of the methodology described in GOV/INF/2016/10 to strengthen nuclear, radiation, transport and waste safety in a comprehensive manner, addressing areas such as design safety, external hazards assessment, safety culture, communication on safety, severe accident management, post-accident remediation and transition to recovery; as well as those aspects related to extending the operating life of nuclear power plants, decommissioning of facilities, disposal of high level radioactive waste, innovative technologies such as fast reactors and small and medium sized or modular reactors, and the safety of radiation sources used in non-power applications.

65. The security of nuclear and other radioactive material and facilities remains a high priority. The Agency develops and publishes nuclear security recommendations and guidance and maintains an effective information platform for their application. At the request of a State, the Agency assists in developing and implementing a robust nuclear security infrastructure, including prevention, detection and response.

66. Despite the nuclear safety and security arrangements in place, the risk of a nuclear or radiological emergency — of various origins or severity cannot be entirely eliminated. This Major Programme is also focused on providing assistance for developing and strengthening national and international capacities to prepare to effectively respond to, and mitigate, the consequences of such an emergency. The Agency is the global focal point for international preparedness and response to nuclear and radiological incidents or emergencies. The Agency implements its response roles under this Major Programme.

67. During this biennium, the internal regulation of radiation safety and nuclear security, as well as internal radiation safety technical services will be strengthened.

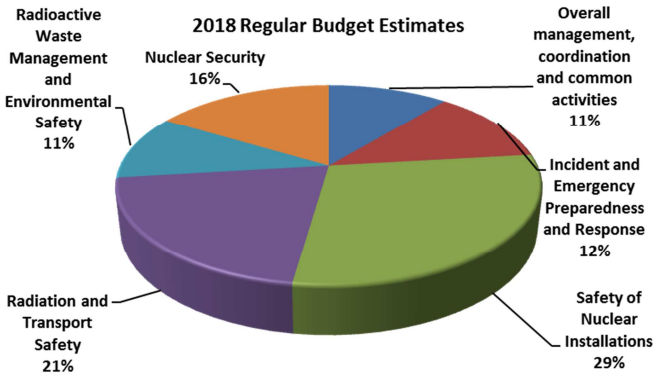


Table 6. Major Programme 3 – Nuclear Safety and Security

Summary of Regular Budget Resources for the Biennium (excluding Major Capital Investments)

Subprogramme / Programme		2017 Budget	2018 Estimates at 2017 prices	2018 Variance over 2017 EUR	2018 Variance over 2017 %	2019 Preliminary Estimates at 2017 prices	2019 Variance over 2018 EUR	2019 Variance over 2018 %
3.0 Overall Management, Coordination and Common Activities	▬	**3 981 786**	**3 921 588**	***(60 198)***	***(1.5%)***	**3 912 182**	***(9 406)***	***(0.2%)***
3.1.1 National and International Emergency Preparedness	↑	1 407 061	1 483 751	*76 690*	*5.5%*	1 483 751	*(1)*	*(0.0%)*
3.1.2 IAEA IES and Operational Arrangements with MSs and IOs.	▬	2 891 680	2 842 914	*(48 766)*	*(1.7%)*	2 842 914	*0*	*0.0%*
3.1.3 Nuclear Safety Action Plan (NSAP)	▬	-	-	-	-	-	-	-
3.1 Incident and Emergency Preparedness and Response Total	▬	**4 298 741**	**4 326 665**	***27 924***	***0.6%***	**4 326 665**	***(0)***	***(0.0%)***
3.2.1 Governmental Regulatory Framework and Safety Infrastructure Development	▬	2 951 356	2 992 584	*41 227*	*1.4%*	3 049 523	*56 939*	*1.9%*
3.2.2 Safety Assessment of Nuclear Installations	↓	2 322 765	2 254 527	*(68 238)*	*(2.9%)*	2 197 835	*(56 693)*	*(2.5%)*
3.2.3 Safety and Protection Against External Hazards	↑	1 069 271	1 206 270	*136 999*	*12.8%*	1 206 270	*(0)*	*(0.0%)*
3.2.4 Safe Operation of Nuclear Power Plants	↓	2 711 479	2 607 593	*(103 886)*	*(3.8%)*	2 607 195	*(397)*	*(0.0%)*
3.2.5 Safety of Research Reactor and Fuel Cycle Facilities	↓	1 336 852	1 309 818	*(27 035)*	*(2.0%)*	1 309 970	*152*	*0.0%*
3.2 Safety of Nuclear Installations Total	▬	**10 391 723**	**10 370 791**	***(20 932)***	***(0.2%)***	**10 370 792**	***1***	***0.0%***
3.3.1 Radiation Safety and Monitoring	↑	4 023 935	4 182 177	*158 242*	*3.9%*	4 182 177	*0*	*0.0%*
3.3.2 Regulatory Infrastructure and Transport Safety	▬	3 237 347	3 233 062	*(4 285)*	*(0.1%)*	3 233 062	*0*	*0.0%*
3.3 Radiation and Transport Safety Total	↑	**7 261 282**	**7 415 239**	***153 957***	***2.1%***	**7 415 239**	***0***	***0.0%***
3.4.1 Safety of Spent Fuel and Radioactive Waste Management	▬	1 753 394	1 776 188	*22 794*	*1.3%*	1 776 188	*0*	*0.0%*
3.4.2 Safety of Decommissioning, Remediation and Environmental Releases	▬	1 961 989	1 966 158	*4 170*	*0.2%*	1 966 158	*0*	*0.0%*
3.4 Radioactive Waste Management and Environmental Safety	▬	**3 715 383**	**3 742 346**	***26 963***	***0.7%***	**3 742 346**	***0***	***0.0%***
3.5.1 Information Management	↑	1 315 794	1 422 083	*106 289*	*8.1%*	1 422 083	-	-
3.5.2 Nuclear Security of Materials and Facilities	↑	1 414 633	1 515 654	*101 021*	*7.1%*	1 515 654	-	-
3.5.3 Nuclear Security of Materials outside of Regulatory Control	↑	1 501 055	1 571 174	*70 119*	*4.7%*	1 571 174	-	-
3.5.4 Programme Development and International Cooperation	↑	1 282 450	1 338 170	*55 719*	*4.3%*	1 338 170	*0*	*0.0%*
3.5 Nuclear Security Total	↑	**5 513 932**	**5 847 081**	***333 149***	***6.0%***	**5 847 081**	***0***	***0.0%***
Total for Nuclear Safety and Security	▬	**35 162 847**	**35 623 710**	***460 864***	***1.3%***	**35 614 305**	***(9 405)***	***(0.0%)***

Major Programme 4: Nuclear Verification

68. Major Programme 4 supports the Agency's statutory mandate to establish and administer safeguards designed to ensure that special fissionable and other materials, services, equipment, facilities and information made available by the Agency, or at its request or under its supervision or control, are not used in such a way as to further any military purpose; and to apply safeguards, at the request of the parties, to any bilateral or multilateral arrangement, or at the request of a State, to any of that State's activities in the field of atomic energy.

69. To this end, the Agency concludes safeguards agreements with States which confer upon the Agency the legal obligation and authority to apply safeguards to nuclear material, facilities and other items subject to safeguards. Under this Major Programme, the Agency carries out verification activities, including the analysis of safeguards relevant information, installation of safeguards instrumentation, in-field inspections, and sample analysis required for implementing safeguards. These activities enable the Agency to draw soundly based safeguards conclusions. In addition, the Agency in accordance with its Statute, assists with other verification tasks including in connection with nuclear disarmament or arms control agreements as requested by States and approved by the Board of Governors.

70. For the 2018–2019 period, the main challenges for Major Programme 4 include:

- Increasing safeguards responsibilities as a result of further safeguards agreements and additional protocols and growing numbers of nuclear facilities and quantities of nuclear material under safeguards;
- Implementing the necessary verification and monitoring in the Islamic Republic of Iran in light of United Nations Security Council resolution 2231 (2015);
- Planning for, and conducting, verification activities in relation to decommissioning of nuclear facilities;
- Preparing to safeguard new types of nuclear facility and more complex, or larger scale nuclear fuel cycle facilities;
- Modernizing the technical systems, services and instrumentation that underpin effective and efficient safeguards implementation;
- Ensuring the availability of a safeguards workforce with the necessary skills and expertise, and maintaining critical knowledge;
- Operating in a challenging security environment, which may require additional measures to ensure the physical safety of staff operating in the field and information security.

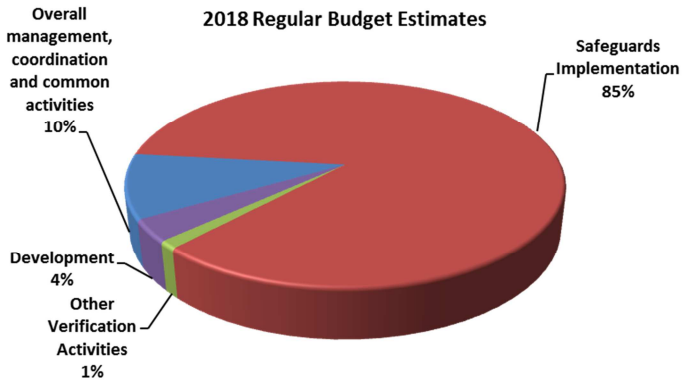


Table 7. Major Programme 4 – Nuclear Verification

Summary of Regular Budget Resources for the Biennium (excluding Major Capital Investments)

Subprogramme / Programme		2017 Budget	2018 Estimates at 2017 prices	2018 Variance over 2017 EUR	2018 Variance over 2017 %	2019 Preliminary Estimates at 2017 prices	2019 Variance over 2018 EUR	2019 Variance over 2018 %
4.0 Overall Management, Coordination and Common Activities	▬	**14 492 940**	**14 271 177**	***(221 763)***	***(1.5%)***	**14 316 332**	***45 154***	***0.3%***
4.1.1 Concepts and Planning	▬	7 858 029	7 731 207	*(126 822)*	*(1.6%)*	7 683 898	*(47 309)*	*(0.6%)*
4.1.2 Safeguards Implementation for States under responsibility of Division SGOA	▬	16 399 175	16 341 569	*(57 606)*	*(0.4%)*	16 342 024	*455*	*0.0%*
4.1.3 Safeguards Implementation for States under responsibility of Division SGOB	↑	22 738 585	24 693 878	*1 955 293*	*8.6%*	24 694 566	*688*	*0.0%*
4.1.4 Safeguards Implementation for States under responsibility of Division SGOC	▬	16 564 301	16 857 385	*293 085*	*1.8%*	16 857 855	*470*	*0.0%*
4.1.5 Information Analysis	↓	12 440 233	12 154 583	*(285 649)*	*(2.3%)*	12 154 922	*339*	*0.0%*
4.1.6 Provision of Safeguards Instrumentation	↑	17 774 172	18 181 489	*407 317*	*2.3%*	18 181 996	*507*	*0.0%*
4.1.7 Analytical Services	↓	10 877 855	10 627 306	*(250 549)*	*(2.3%)*	10 627 602	*296*	*0.0%*
4.1.8 Effectiveness Evaluation	↓	1 571 418	1 403 398	*(168 020)*	*(10.7%)*	1 403 437	*39*	*0.0%*
4.1.9 Safeguards Information Communication Technology (ICT) Total	↑	10 551 988	13 017 924	*2 465 936*	*23.4%*	14 497 393	*1 479 469*	*11.4%*
4.1 Safeguards Implementation Total	↑	**116 775 755**	**121 008 739**	***4 232 984***	***3.6%***	**122 443 693**	***1 434 954***	***1.2%***
4.2.1 Other Verification Activities	↑	457 377	1 739 638	*1 282 261*	*280.4%*	2 790 484	*1 050 846*	*60.4%*
4.2 Other Verification Activities Total	↑	**457 377**	**1 739 638**	***1 282 261***	***280.4%***	**2 790 484**	***1 050 846***	***60.4%***
4.3.1 Development of Safeguards Information Technology	↓	3 950 149	1 483 748	*(2 466 400)*	*(62.4%)*	-	*(1 483 748)*	*(100.0%)*
4.3.2 Development of Safeguards Instrumentation	↓	2 841 573	2 647 109	*(194 464)*	*(6.8%)*	2 647 182	*74*	*0.0%*
4.3.3 Special Projects	↓	774 458	705 322	*(69 136)*	*(8.9%)*	705 341	*20*	*0.0%*
4.3 Development Total	↓	**7 566 179**	**4 836 179**	***(2 730 001)***	***(36.1%)***	**3 352 524**	***(1 483 655)***	***(30.7%)***
Total for Nuclear Verification	▬	**139 292 251**	**141 855 733**	***2 563 482***	***1.8%***	**142 903 032**	***1 047 300***	***0.7%***

Major Programme 5: Policy, Management and Administration Services

71. Under the leadership, direction and authority of the Director General, the Agency's programmes seek to achieve the goals and objectives of its Member States. This requires effective coordination to ensure a one house approach, particularly with respect to: overall directions and priorities; interactions with Member States; development and implementation of programmes; results based management, including performance assessment and risk management; partnerships and resource mobilization; and the management of information within the Secretariat, between the Secretariat and Member States, and for the benefit of the general public and the media.

72. In addition, a wide range of administrative and legal services will continue to be provided to support Agency programmes in efficiently and effectively fulfilling the organization's mandate. It should be noted that approximately 25% of the budget for Major Programme 5 is related to the cost of buildings management and the common security services of the Vienna International Centre (VIC). Major Programme 5 coordinates security efforts through a centralized security coordination function for the Agency, including integrated management of facilities and site security of the Agency laboratories at Seibersdorf.

73. The need to enhance the Agency's information security infrastructure, processes and capabilities to address associated severe and escalating threats will continue to grow, in particular to ensure the security of the information with which the Agency is entrusted.

74. The implementation of the Agency-wide Information System for Programme Support (AIPS) realized streamlining of administrative services in particular in the area of financial transactions, which led to restructuring of the Division of Budget and Finance with associated savings in the 2018–2019 budget. With the completion of the AIPS project in 2017, its user services will be transferred to Subprogramme 5.0.5 Information Communication Technology.

75. Continued efforts aimed at efficiency and rationalization of work, as well as efforts to reduce printed material, have led to savings in the area of Conference and Document Services.

76. In the area of human resources, necessary adjustments have been incorporated in the Programme and Budget 2018–2019 to reflect the changes arising from the United Nations General Assembly's decisions regarding the compensation package and conditions of employment of staff in the Professional and higher categories.

77. The oversight activities of the Agency will continue to strengthen accountability, efficiency and effectiveness through audits, evaluations, investigations and the provision of advisory support to senior management and the Member States. This will be achieved through the continued activities of the Office of Internal Oversight Services and the Secretariat's support for the External Auditors.

78. In line with good practice, to strengthen awareness of ethics and to ensure the highest standards of integrity of staff, an independent ethics function reporting directly to the Director General will be established.

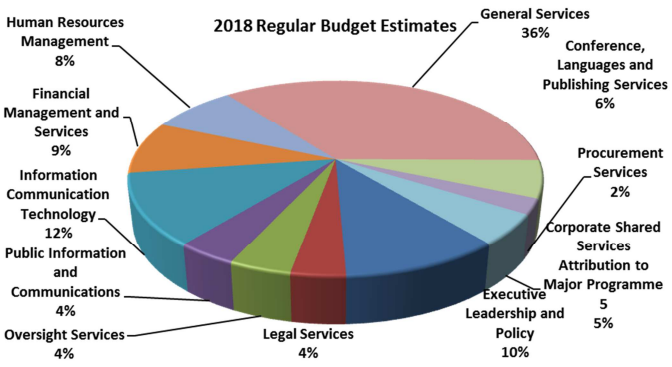


Table 8. Major Programme 5 – Policy, Management and Administration Services

Summary of Regular Budget Resources for the Biennium (excluding Major Capital Investments)

Subprogramme / Programme			2017 Budget	2018 Estimates at 2017 prices	2018 Variance over 2017 EUR	2018 Variance over 2017 %	2019 Preliminary Estimates at 2017 prices	2019 Variance over 2018 EUR	2019 Variance over 2018 %
5.0.1	Executive Leadership and Policy	=	8 119 746	8 248 542	*128 796*	*1.6%*	8 242 869	*(5 673)*	*(0.1%)*
5.0.2	Legal Services	=	2 857 200	2 831 023	*(26 177)*	*(0.9%)*	2 831 018	*(5)*	*(0.0%)*
5.0.3	Oversight Services	=	3 247 848	3 233 134	*(14 714)*	*(0.5%)*	3 233 234	*100*	*0.0%*
5.0.4	Public Information and Communications	=	3 170 223	3 144 461	*(25 762)*	*(0.8%)*	3 144 455	*(6)*	*(0.0%)*
5.0.5	Information Communication Technology	=	9 329 279	9 307 127	*(22 152)*	*(0.2%)*	9 307 112	*(16)*	*(0.0%)*
5.0.6	Financial Management and Services	↓	7 337 469	6 899 833	*(437 636)*	*(6.0%)*	6 899 822	*(12)*	*(0.0%)*
5.0.7	Human Resources Management	=	6 486 887	6 367 353	*(119 533)*	*(1.8%)*	6 367 343	*(11)*	*(0.0%)*
5.0.8	General Services	=	28 193 736	28 045 111	*(148 625)*	*(0.5%)*	28 045 064	*(47)*	*(0.0%)*
5.0.9	Conference, Languages and Publishing Services	↓	5 078 112	4 907 619	*(170 493)*	*(3.4%)*	4 907 451	*(167)*	*(0.0%)*
5.0.10	Procurement Services	=	1 998 894	2 011 321	*12 427*	*0.6%*	2 011 317	*(3)*	*(0.0%)*
5.0.11	Corporate Shared Services Attribution to Major Programme 5	↑	3 737 930	3 966 336	*228 406*	*6.1%*	3 958 216	*(8 120)*	*(0.2%)*
Total for Policy, Management and Administration Services		=	**79 557 324**	**78 961 859**	***(595 465)***	***(0.7%)***	**78 947 901**	***(13 959)***	***(0.0%)***

Major Programme 6: Management of Technical Cooperation for Development

79. Major Programme 6 enables the development, implementation and management of technical cooperation projects in the framework of biennial technical cooperation programme (TCP). Technical cooperation projects are developed through a consultative process to address national development priorities outlined in Country Programme Frameworks (CPFs) and national development plans, and to address issues of common interest and needs identified through various regional frameworks.

80. The TCP consists of national, regional and interregional projects funded from the Technical Cooperation Fund (TCF) and from extrabudgetary contributions. The TCP will continue to serve as a major vehicle for the transfer of nuclear technology and capacity building in nuclear applications in Member States and contributes to their efforts in achieving Sustainable Development Goals (SDGs).

81. Under the 2018–2019 TCP, a total of 136 Member States, including 35 least developed countries will have a national TCP, representing an increase of 7 Member States compared with the 2016–2017 cycle.

82. For planning purposes, the overall rate of attainment of the TCF is assumed to reach at least 92%. The TCP for the 2018–2019 is formulated with due emphasis on the following:

- Ensuring adequate support to the growing number of Member States that participate in the TCP and to the extended demands of Member States for the peaceful uses of nuclear technology for their sustainable development including the achievements of SDGs, in particular SDGs 2, 3, 6, 7, 9, 13, 14, 15 and 17;
- Strengthening technical cooperation support to Member States with regard to radiation safety and regulatory infrastructure;
- Contributing to the international efforts with regard to the assessment of the impact of climate change through the TCP;
- Providing support to those Member States requiring dedicated assistance in introducing and/or expanding their cancer care capacity by integrating radiotherapy, diagnostic imaging and nuclear medicine services into a comprehensive cancer control programme;
- Ensuring the Agency's continued capability to deliver the programme and to swiftly and adequately respond to Member States' emerging and urgent requests for support through the TCP.
- Enhancing the effectiveness, efficiency and quality of the TCP and progressive implementation of outcome monitoring and evaluation measures;
- Strengthening partnership, including Public–Private Partnership (PPP), and resource mobilization for the TCP;
- Enhancing the visibility, promotion and outreach efforts related to the Agency's TCP.

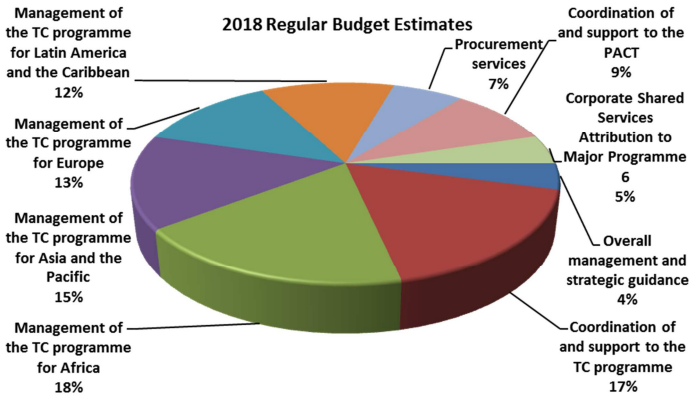


Table 9. Major Programme 6 – Management of Technical Cooperation for Development

Summary of Regular Budget Resources for the Biennium (excluding Major Capital Investments)

Subprogramme / Programme		2017 Budget	2018 Estimates at 2017 prices	2018 Variance over 2017 EUR	2018 Variance over 2017 %	2019 Preliminary Estimates at 2017 prices	2019 Variance over 2018 EUR	2019 Variance over 2018 %
6.0.1.001	Overall management and strategic guidance	1 061 702	1 063 170	1 468	0.1%	1 063 170	(0)	(0.0%)
6.0.1.002	Coordination of and support to the TC programme	4 508 227	4 438 222	(70 005)	(1.6%)	4 437 724	(498)	(0.0%)
6.0.1.003	Management of the TC programme for Africa	4 420 230	4 649 266	229 036	5.2%	4 649 265	(0)	(0.0%)
6.0.1.004	Management of the TC programme for Asia and the Pacific	3 711 541	3 831 616	120 076	3.2%	3 831 616	(0)	(0.0%)
6.0.1.005	Management of the TC programme for Europe	3 254 461	3 234 507	(19 954)	(0.6%)	3 234 507	(0)	(0.0%)
6.0.1.006	Management of the TC programme for Latin America and the Caribbean	2 822 589	3 110 423	287 835	10.2%	3 110 423	(0)	(0.0%)
6.0.1.007	Procurement services	1 656 847	1 651 122	(5 726)	(0.3%)	1 651 122	(0)	(0.0%)
6.0.1.008	Coordination of and support to the PACT	2 321 520	2 401 988	80 468	3.5%	2 401 988	(0)	(0.0%)
6.0.1.009	Corporate Shared Services Attribution to Major Programme 6	1 116 533	1 205 686	89 153	8.0%	1 200 068	(5 618)	(0.5%)
Total for Management of Technical Cooperation for Development		**24 873 650**	**25 586 000**	**712 351**	**2.9%**	**25 579 883**	**(6 117)**	**(0.0%)**

I.4 Major Capital Investments

Major Capital Investment Plan

83. The Major Capital Investment Plan (MCIP) outlines the Agency's major capital projects for ten years (from 2018 to 2027). It is updated annually and is derived from the needs of the Agency to maintain an updated, well functioning and adequate infrastructure. An overview of the plan with annual projection is provided in Table 10.

84. For 2018, major capital investment requirements total €19.9 million. The breakdown is shown in the table below.

Major Programme/Major Capital Item (in € millions)	2018
2. Nuclear Techniques for Development and Environmental Protection	
ReNuAL+	6.0
Infrastructure Upgrade for the Monaco-based Environment Laboratories	1.0
Major Programme 2	**7.0**
3. Nuclear Safety and Security	
Radiation Safety Technical Services	0.3
Major Programme 3	**0.3**
4. Nuclear Verification	
MOSAIC	3.9
Develop and Implement a Safeguards Approach for J-MOX	2.0
Major Programme 4	**5.9**
5. Policy, Management and Administration Services	
Seibersdorf Infrastructure and Common facilities	1.3
Provision for IT Infrastructure and Information Security Investment	5.4
Major Programme 5	**6.7**
Major Capital Investment Plan Total	**19.9**

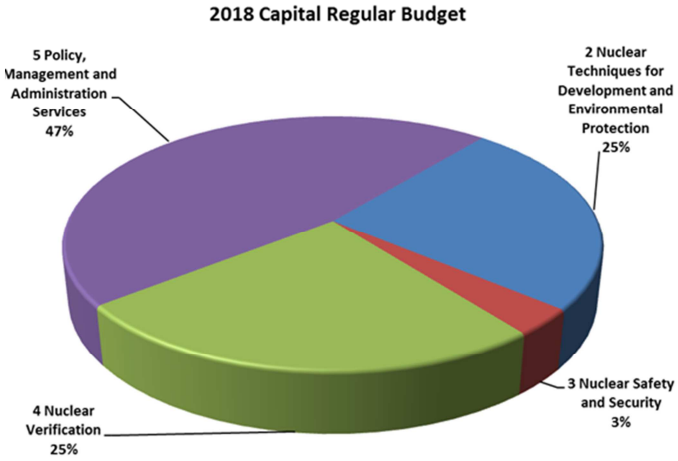
85. The Major Capital Investment Fund (MCIF) is a reserve fund established in accordance with Financial Regulation 4.06 to help to provide for the Agency's major infrastructure requirements which are included in the MCIP. It provides an opportunity to fund capital requirements which could otherwise face continued deferral or require substantial increases in annual contributions. The MCIF is reviewed by the Board of Governors in the framework of the established Programme and Budget approval process.

86. In accordance with GC(53)/5, the MCIF is funded by the entire amount appropriated for the capital portion of the Regular Budget, unspent budgetary balances from the operational Regular Budget in prior years, if any, and any other source as the Board of Governors may determine.

87. Since the inception of the MCIF in 2009[1], unspent balances from past operational Regular Budget appropriations have been transferred to the MCIF and reported in the respective financial statements in accordance with Financial Regulation 7.02 (b) (4). In the same manner, unspent budgetary balances from the 2016–2017 operational Regular Budget will also be transferred to the MCIF.

Capital Investments

88. The Director General is proposing to maintain the capital Regular Budget funding at €8.0 million for 2018 (€8.1 million including price adjustment).



89. The MCIF funding is distributed to the following projects:

- Renovation of the Nuclear Applications Laboratories (ReNuAL+) — Major Programme 2 — €2.0 million.
- Radiation Safety Technical Services — Major Programme 3 — €0.3 million.
- MOSAIC — Major Programme 4 — €1.0 million.

[1] Documents GOV/2009/1 and GOV/2009/52/Rev.1.

- Develop and Implement a Safeguards Approach for J-MOX — Major Programme 4 — €1.0 million.
- Seibersdorf Infrastructure and Common Facilities — Major Programme 5 — €0.6 million.
- Provision for IT Infrastructure and Information Security Investment — Major Programme 5 — €3.2 million.

90. While this document presents the MCIP for the period 2018–2027, a significant amount of capital investments proposed in 2018 remains unfunded. Currently, a total of €11.8 million of capital requirements remains unfunded for 2018, while investments unfunded for 2019 amount to €7.5 million. It is hoped that these requirements will be funded through extrabudgetary contributions. The unfunded requirements for both 2018 and 2019 are presented in Table 12.

Overview by Major Programme

91. An overview is provided in the following paragraphs for those major capital investments that are part of the MCIP for 2018–2027.

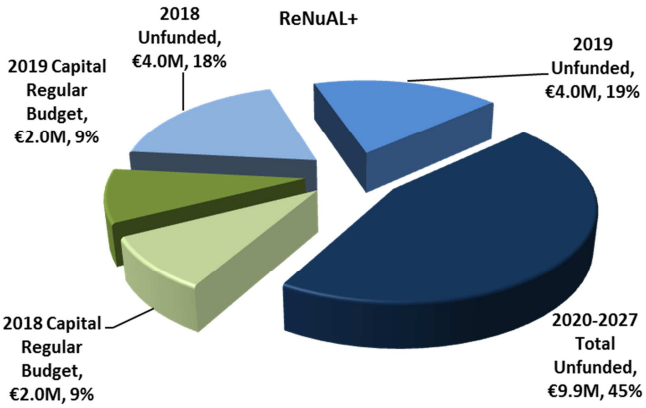
Major Programme 2: Nuclear Techniques for Development and Environmental Protection

Renovation of the Nuclear Applications Laboratories (ReNuAL+)

92. The General Conference and the Board of Governors have acknowledged the need to modernize and renovate the Nuclear Applications (NA) laboratories in Seibersdorf to ensure their ability to respond to Member States' present and future development needs in the areas of science and technology. The ReNuAL project officially began on 1 January in 2014 and will be completed in 2018.

93. The follow-up to ReNuAL (referred to as ReNuAL+) in this biennium will focus on those elements in the original ReNuAL which could not be accommodated in the previous phase. This will include building the third wing of the Flexible Modular Laboratory and carrying out priority refurbishment activities in relevant existing laboratory space. These activities will represent the completion of the overall ReNuAL initiative and will result in significantly enhanced capabilities to ensure that the laboratories in Seibersdorf can continue to meet the needs of Member States.

94. The overall project needs for the period 2018–2021 are estimated at €22.0 million. For 2018–2019, requirements of €12 million are presented which are offset by €2.0 million from the MCIF for each of the biennium years.



Infrastructure Upgrade for the Monaco based Environment Laboratories

95. The project consists of:

- Oceanic ecosphere with digital observation system for the Radioecology Laboratory: This project aims at developing a fit for purpose oceanic ecosphere to study ecosystem response to multiple stressors. This oceanic ecosphere will be a cornerstone of NAEL's radioecology laboratory and will provide Member States with an experimental platform to address critical topics such as seafood safety, ocean acidification, and harmful algal blooms (HABs).
- Upgrade of the low-level underground counting facility (LLUCF) which serves two key purposes. Firstly, the LLUFC facilitates access for Member States to an advanced gamma spectrometry system for training, performing analyses and developing the sensitive methodologies for

measurements of radionuclides. Secondly, the facility is used to provide precise and accurate characterization of IAEA Reference Materials (RMs) and Proficiency Testing (PT) samples. The current instrumentation in LLUCF has aged and is not up to date with recent developments in that field.

- Underwater gamma spectrometric systems: Member States have shown an increased interest in portable and remotely operated detection systems. Their applications range from environmental monitoring in emergency situations to monitoring of desalination plants' intakes.

- Multicollector–inductively coupled plasma mass spectrometry (MC–ICP–MS): The MC ICP-MS can analyse isotope ratios on a range of elements with very high precision, including those with high ionization potential, which are difficult to analyse with other methods. Acquiring this equipment will enhance the IAEA capacity to respond to Member States' demand for studying pollution and climate change processes and for developing environmental forensic tools.

96. This project identifies the most urgently needed infrastructure upgrades for the Monaco based Environment laboratories to enhance their capabilities in order to meet the evolving needs of Member States for high quality services in the field of marine environment. The overall project needs for the period 2018–2019 of €2.0 million are currently unfunded.

Calibration and Auditing Services for the Dosimetry Laboratory (Seibersdorf)

97. The Dosimetry Laboratory supports Member States for dosimetry of various types of diagnostic and treatment equipment. This requires the laboratory to operate such systems in order to provide these services. This project aims at acquiring the following three types of equipment to ensure the continuity of the delivery of these services:

- The DOL X-ray system is used for dosimetry calibration services that are provided for Member States. In order to continue the services to Member States, the equipment should be replaced after it approaches its useful lifetime (approximately 15 years). Its replacement is planned for 2020.

- The ^{60}Co unit (X-200) is used for dosimetry calibration and audit services for Member States. The ^{60}Co source should be replaced regularly, in periods depending on the source strength at the installation, typically not exceeding ten years. The source is at present ten years old and is reaching the end of its useful lifetime. The replacement of the source is listed under ReNuAL+ for 2018 and its next replacement is included under this new project for 2025.

- The DOL HDR brachytherapy system contains two different types of sources namely ^{60}Co and ^{192}Ir. The system will be used for dosimetry calibration services for Member States as of 2018. In order to continue the services to Member States, the system should be replaced owing to anticipated wear and tear of equipment. The replacement for this system is planned for 2027.

98. The overall project needs of €0.7 million for the period 2020–2027 are currently unfunded.

Mass Spectrometer for the Isotope Hydrology Laboratory

99. The mass spectrometer will replace a similar unit purchased in 2003 by the Isotope Hydrology Laboratory which is coming to the end of its useful life. The new unit will produce more accurate results and increased throughput, and will address the growing demand of isotope analyses in high priority areas of the Water Resources Programme.

100. The overall project needs of €0.6 million for the period 2018–2027 are currently unfunded.

Major Programme 3 – Nuclear Safety and Security

Enhancing Radiation Safety through Efficient and Modern Dosimetry (RADSED)

101. This project, over a period of ten years, aims at implementing the best of dose assessment technologies in order to compare their efficiencies to the endpoint of biodosimetry. This endpoint has the potential to include other modalities such as those currently in use and those in advanced stages of development. It will be determined which modalities can be replaced by biodosimetry and which can be partially replaced. Programmes will be implemented to better and more accurately:

- Assess doses to Agency staff and participants in Agency-sponsored activities,
- Provide recommendations to Member States on accurate and efficient modalities while understanding the trade-offs depending on radiation exposure types and levels;
- Provide recommendations for non-routine planned operations regarding different dosimetry modalities.

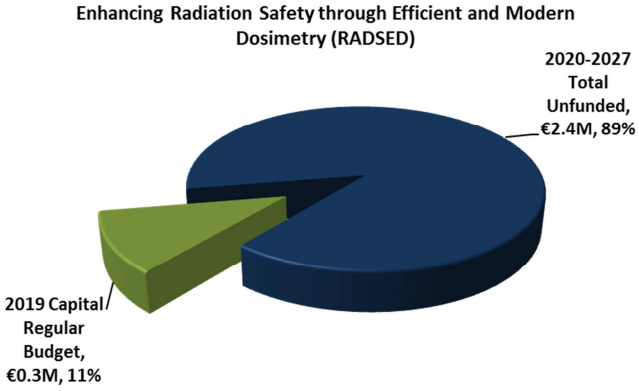
102. Since its creation, the Agency has provided dosimetry for staff and advice to Member States. Dosimetric capabilities are at a significant crossroad that provides for enhanced personalized, cost-effective personal dosimetry. Unlike in the past when systems were introduced one at a time and used almost exclusively around the world, there are now multiple modalities available with advantages for each. This project leverages the most used and accurate of those modalities.

103. The main reasons for this project are:

- Provision of adequate and comprehensive information to the Agency managers on radiation safety and associated radiation risk;
- The high number of inspections and operational missions to facilities, putting an increased burden to understand risks and doses to staff and experts.

104. Ongoing development of new dosimetric approaches imposes pressure on the Agency to cope with this trend in order to provide the best advice to Member States.

105. The overall project needs for the period 2019–2027 are €2.7 million. The funding requirement for 2019 is €0.3 million which is fully funded from the MCIF.



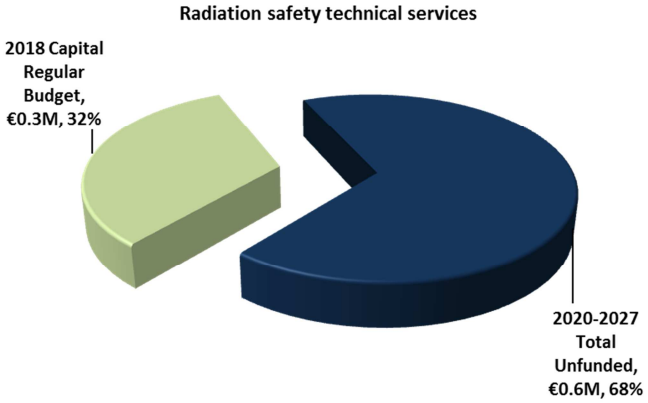
Radiation Safety Technical Services

106. The Radiation Safety Technical Services Unit provides direct support to Agency managers and Radiation protection officers to meet their regulatory obligations to monitor and evaluate doses to staff and doses to participants in Agency sponsored activities worldwide. Monitoring is required routinely and for emergency purposes. This project aims to improve the equipment replacement planning process for radiation monitoring and protection services by providing for the timely replacement of essential equipment of a significant value before it exceeds its service life and either fails or becomes non-functional. It also provides for a back-up equipment programme as required by the ISO 17025 accreditation.

107. This project is required to ensure dose assessment capabilities are consistently available for routine or emergency monitoring needed by the Agency for staff or participants in Agency sponsored activities to ensure they are being adequately protected. The ISO 17025

accreditation of the laboratory, and its being a model for Member States, is dependent on having a replacement plan in place for when equipment fails.

108. The overall project needs are estimated at €0.8 million for the period 2018–2026. The funding requirement for 2018 is €0.3 million, which is fully funded from the MCIF.



Major Programme 4: Nuclear Verification

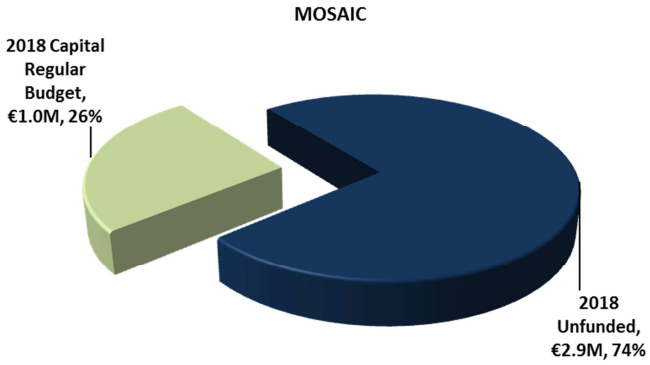
MOSAIC

109. As stated in GOV/INF/2014/24, this is a multi-phase project. The first phase consisting in the transfer of mainframe applications and data had been addressed by the Safeguards Information Systems project in the 2014–2015 biennium budget.

110. Over the period 2015–2018, the Agency continues upgrading and optimizing the IT infrastructure that support the Department of Safeguards, under the 'Modernization of Safeguards Information Technology' project (MOSAIC). In 2015, new tools and applications were developed for, inter alia, compiling safeguards information in a single integrated and secure environment with cutting edge analytical capabilities; planning and reporting in-field activities consistently; and automating the production of elements of the annual Safeguards Implementation Report (SIR). These systems are improving the quality and efficiency of verification activities in the Department of Safeguards.

111. The Agency is further enhancing existing tools and applications to make the data and information more readily available to users and to introduce new user-friendly tools and applications for those safeguards activities that can be better supported by IT tools (e.g. modern IT tools to collect and process safeguards relevant information; new software applications that eliminate paper based steps and save staff time; improved IT management tools to monitor safeguards implementation). By the planned completion date in 2018, the Agency will also continue to further improve information security in order to protect against external threats and improve efficiency.

112. The overall project needs over the period 2015–2018 are estimated at €41 million. Out of this amount, €5.4 million are needed in 2018. The project is a development project, leveraging on internal resources which will be partly covered by the 2018 operational Regular Budget (€1.5 million). The remaining €3.9 million is included in the MCIP, with €1.0 million funded by the MCIF, while €2.9 million remains unfunded.

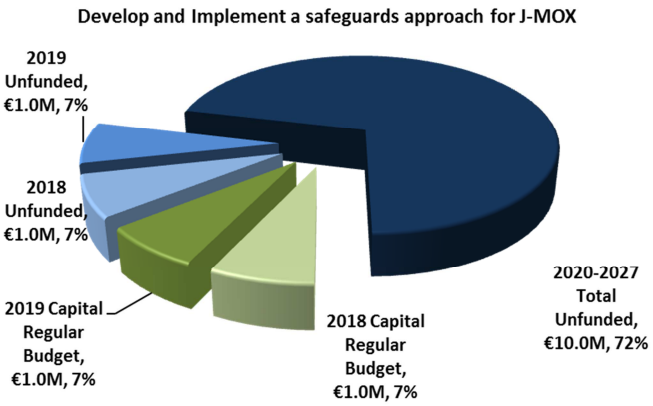


Develop and Implement a Safeguards Approach for J-MOX

113. Japan Nuclear Fuel Ltd is building a large scale plant to produce mixed uranium and plutonium oxide (MOX) fuel for light water reactors at its Rokkasho Mura site. Construction started in 2010, was suspended in 2011, and resumed in 2014. According to the latest officially supplied information (from November 2015), the construction and commissioning of the facility will be completed in the first half of the 2019 Japanese fiscal year. Although there are still uncertainties about that deadline, the

development, manufacturing, testing and installation of equipment and software are necessary in order to have all safeguards systems available for use for the operation of the facility. The relevant plans and funding from MCIF include major equipment and software required for safeguarding the plant.

114. The overall project needs for the period 2018–2023 are estimated at €14.0 million. The capital requirements of €2.0 million in 2018 and 2019 are funded from the MCIF in the amount of €1.0 million in each of the biennium years. An amount of €12.0 million remains unfunded.



Develop and implement safeguards approaches for a spent fuel encapsulation plant and geological repository (EPGR) in Finland and Sweden

115. Finland and Sweden are each planning to construct an encapsulation plant and geological repository (EPGR) to permanently store their spent fuel. In Finland the construction licence was granted in 2015 and operation is planned to commence in 2024. The Sweden EPGR is planned to commence operation around 2030. The construction of encapsulation plants and geological repositories represent new safeguards challenges as nuclear material is intended to remain there permanently and traditional access for verification will not be possible. Planning for equipment implementation is also challenging as equipment development over time needs to be carefully considered.

116. The EPGR Project coordinates the development of specific safeguards approaches for encapsulation plants and geological repositories, assesses the existing verification methods and identifies the needs for new equipment and techniques necessary for safeguarding these facilities and implements optimized safeguards measures at the time these facilities become operational.

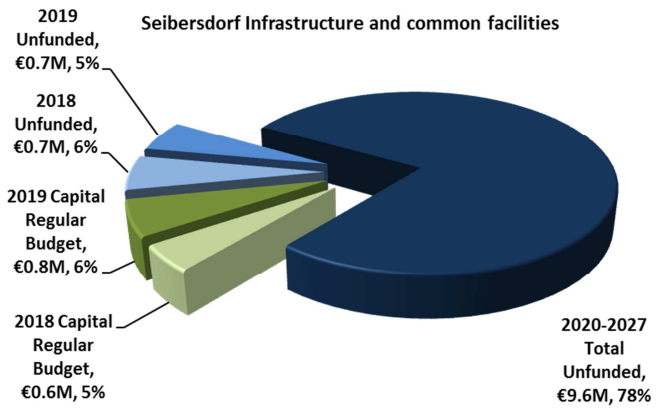
117. The overall project needs over the period 2020–2027 are estimated at €7.4 million. The project at this stage remains unfunded.

Major Programme 5: Policy, Management and Administration Services

Seibersdorf Infrastructure and common facilities

118. This is a continuation of the project from 2017. Its objective is to ensure the safety and security of the Seibersdorf site, after its transformation into an enclosed and self-sufficient campus in 2016. In light of the site-wide requirements, fitting and upgrading of the physical safety and security as well as integration of surveillance and other security systems are needed. The project includes front gate and vehicle apron, the enhancement of safety and security for pedestrians on the site, and the replacement and integration of existing physical security systems, as well as of the pager and video system. This will lead to the long term efficiencies and savings, including a reduction in the human resource requirements for security needs.

119. The total project needs for the period 2018–2027 are estimated at €12.4 million. The 2018 funding requirement for the project is €1.3 million, of which €0.6 million is funded from the MCIF. For 2019, funding needs of €1.4 million are offset by €0.8 million from the MCIF.



Provision for IT Infrastructure and Information Security Investment

120. A secure, available and reliable information and communication technology (ICT) infrastructure and support systems are essential to programme delivery. This critical project is to cover the ICT costs associated with maintaining up-to-date ICT infrastructure and services. A component of this project includes equipment replacement in the areas of telecommunications, data processing, storage, networking, and the vitally needed upgrades to the data centres in the Vienna International Centre and Seibersdorf. The anticipated measures of this provision are based on the industry best practice life cycles of standard ICT equipment.

121. It also includes disaster recovery infrastructure. The Agency needs a stronger disaster recovery infrastructure and capability. Funding would be used to build capabilities identified as most critical during a recent Business Impact Analysis exercise.

122. A third component relates to the need for future upgrade of common support systems. Oracle eBusiness Suite (the platform for AIPS) upgrades will be required in the future, as extended support for the Agency's current version of Oracle eBusiness Suite will end in 2019. A new version has already been released, and there are several technology changes that need to be analysed and tested as part of the upgrade. The ten year plan foresees an upgrade every five years, starting in 2018.

123. The overall project needs for the period 2018–2027 are estimated at €38.2 million. For 2018, needs of €5.4 million are offset with €3.2 million; while for 2019, needs of €4.7 million are offset with €3.9 million; both from the MCIF. This leaves €2.2 million unfunded in 2018 and €0.7 million in 2019.

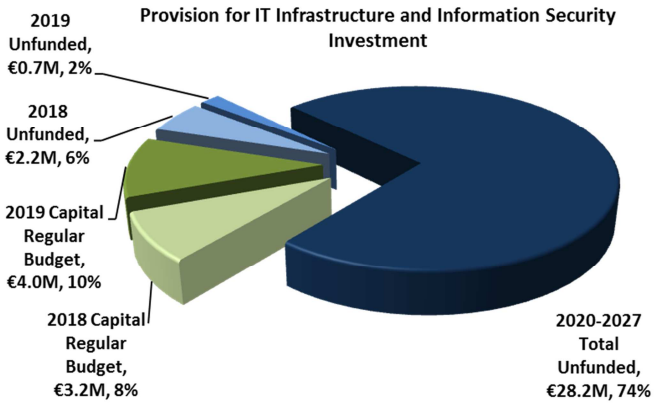


Table 10. Major Capital Investment Plan 2018–2027

	Major Programme/Major Capital Item	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	Total
2.	**Nuclear Techniques for Development and Environmental Protection**											
	ReNuAL+	6 041 985	6 041 985	4 937 997	4 937 997	-	-	-	-	-	-	21 959 963
	Infrastructure Upgrade for the Monaco-based Environment Laboratories	957 600	1 058 400	-	-	-	-	-	-	-	-	2 016 000
	Calibration and Auditing Services for the Dosimetry Laboratory (Seibersdorf)	-	-	201 600	-	-	-	-	201 600	-	252 000	655 200
	Mass Spectrometer for the Isotope Hydrology Laboratory	-	-	556 618	-	-	-	-	-	-	-	556 618
	Major Programme 2	**6 999 585**	**7 100 385**	**5 696 214**	**4 937 997**	**-**	**-**	**-**	**201 600**	**-**	**252 000**	**25 187 781**
3.	**Nuclear Safety and Security**											
	Enhancing Radiation Safety through Efficient and Modern Dosimetry (RADSED)	-	302 400	473 810	347 659	448 358	356 731	381 780	366 509	-	-	2 677 248
	Radiation Safety Technical Services	270 144	-	-	-	-	262 080	-	-	300 384	-	832 608
	Major Programme 3	**270 144**	**302 400**	**473 810**	**347 659**	**448 358**	**618 811**	**381 780**	**366 509**	**300 384**	**-**	**3 509 856**
4.	**Nuclear Verification**											**-**
	MOSAIC	3 931 200	-	-	-	-	-	-	-	-	-	3 931 200
	Develop and Implement a Safeguards Approach for J-MOX	2 016 000	2 016 000	3 024 000	3 024 000	2 016 000	1 915 200	-	-	-	-	14 011 200
	Develop and implement SG Approaches for a SF EPGR in Finland/Sweden	-	-	839 664	1 504 944	1 504 944	1 167 264	-	20 160	839 664	1 504 944	7 381 584
	Major Programme 4	**5 947 200**	**2 016 000**	**3 863 664**	**4 528 944**	**3 520 944**	**3 082 464**	**-**	**20 160**	**839 664**	**1 504 944**	**25 323 984**
5.	**Policy, Management and Administration Services**											
	Seibersdorf Infrastructure and Common facilities	1 307 376	1 438 416	1 201 536	1 201 536	1 201 536	1 201 536	1 201 536	1 201 536	1 201 536	1 201 536	12 358 080
	Provision for IT Infrastructure and Information Security Investment	5 352 480	4 694 256	3 855 600	3 343 536	2 252 880	4 611 600	4 495 680	4 782 960	2 162 160	2 666 160	38 217 312
	Major Programme 5	**6 659 856**	**6 132 672**	**5 057 136**	**4 545 072**	**3 454 416**	**5 813 136**	**5 697 216**	**5 984 496**	**3 363 696**	**3 867 696**	**50 575 392**
	Major Capital Investment Plan Total	**19 876 785**	**15 551 457**	**15 090 825**	**14 359 672**	**7 423 718**	**9 514 411**	**6 078 996**	**6 572 765**	**4 503 744**	**5 624 640**	**104 597 013**

Table 11. Capital Regular Budget Details 2018–2019

	Major Programme / Major Capital Item	2017 Budget	2018 Estimates at 2017 Prices	2018 Estimates at 2018 Prices	2019 Preliminary estimates at 2017 Prices	2019 Preliminary estimates at 2018 Prices
2.	**Nuclear Techniques for Development and Environmental Protection**					
	Renovation of the Nuclear Applications Laboratories (ReNuAL)	2 511 084	-	-	-	-
	ReNuAL+	-	2 000 000	2 011 381	2 000 000	2 011 381
	Major Programme 2	**2 511 084**	**2 000 000**	**2 011 381**	**2 000 000**	**2 011 381**
3.	**Nuclear Safety and Security**					
	Enhancing Radiation Safety through Efficient and Modern Dosimetry (RADSED)	304 072	-	-	300 000	302 400
	Radiation Safety Technical Services	-	268 000	270 144	-	-
	Major Programme 3	**304 072**	**268 000**	**270 144**	**300 000**	**302 400**
4.	**Nuclear Verification**					
	MOSAIC	1 215 040	1 000 000	1 008 000	-	-
	Develop and Implement a Safeguards Approach for J-MOX	1 012 534	1 000 000	1 008 000	1 000 000	1 008 000
	Major Programme 4	**2 227 574**	**2 000 000**	**2 016 000**	**1 000 000**	**1 008 000**
5.	**Policy, Management and Administration Services**					
	Seibersdorf Infrastructure and Common Facilities	-	562 000	566 496	762 000	768 096
	Provision for IT Infrastructure and Information Security Investment	3 057 853	3 170 000	3 195 360	3 938 000	3 969 504
	Major Programme 5	**3 057 853**	**3 732 000**	**3 761 856**	**4 700 000**	**4 737 600**
	Capital Regular Budget	**8 100 584**	**8 000 000**	**8 059 381**	**8 000 000**	**8 059 381**

The price adjustment for the capital Regular Budget is 0.7%.

124. The table below lists 2018–2019 capital needs that will not be funded within the MCIF. It is expected that these requirements will attract extrabudgetary pledges by Member States.

Table 12. Unfunded 2018–2019 Capital Needs

Major Programme / Major Capital Item	2018	2019
2. Nuclear Techniques for Development and Environmental Protection		
ReNuAL+	4 030 604	4 030 604
Infrastructure Upgrade for the Monaco-based Environment Laboratories	957 600	1 058 400
Major Programme 2	**4 988 204**	**5 089 004**
4. Nuclear Verification		
MOSAIC	2 923 200	-
Develop and Implement a Safeguards Approach for J-MOX	1 008 000	1 008 000
Major Programme 4	**3 931 200**	**1 008 000**
5. Policy, Management and Administration Services		
Seibersdorf Infrastructure and Common Facilities	740 880	670 320
Provision for IT Infrastructure and Information Security Investment	2 157 120	724 752
Major Programme 5	**2 898 000**	**1 395 072**
Major Capital Investment Plan Total	**11 817 404**	**7 492 076**

I.5 Draft Resolutions for 2018

125. This section presents the Agency's draft resolutions for 2018, including the appropriations for the 2018 Regular Budget, the allocation for the Technical Cooperation Fund (TCF) in 2018, and the Working Capital Fund (WCF) in 2018.

A. The Regular Budget

126. Regular Budget appropriations for 2018 are presented in two parts: one for the operational Regular Budget (paras 1 and 2 of Resolution A); and one for the capital Regular Budget (paras 3–5 of Resolution A). The expenditures against these appropriations will be recorded separately, so that funds appropriated for the operational Regular Budget will not be used for major capital investments and vice versa. The total amount of appropriations for the capital Regular Budget will be transferred to the Major Capital Investment Fund.

127. The resolution for the Regular Budget appropriation contains an adjustment formula to take into account the exchange rate variations during the year. Member State contributions will be based on the scale of assessment to be fixed by the General Conference in September 2017.

B. Technical Cooperation Programme

128. The technical cooperation activities of the Agency are financed from the TCF and extrabudgetary contributions. The TCF is mainly comprised of voluntary contributions, for which a target is recommended each year by the Board of Governors, and National Participation Costs paid by recipient Member States. The target for voluntary contributions to the TCF recommended by the Board of Governors for 2018 amounts to €85 665 000 and to €86 165 000 for 2019.

129. The forecast of the resources for the technical cooperation programme for 2018 amounts to €97 811 800 and comprises: (a) €78 811 800 for estimated core project funding; (b) €2 000 000 for National Participation Costs (to be added to the estimated core funding); and (c) €17 000 000 for the estimated implementation levels of extrabudgetary activities.

130. The forecast for 2019 amounts to €97 271 800 and comprises: (a) €79 271 800 for estimated core project funding; (b) €1 000 000 for National Participation Costs (to be added to the estimated core funding); and (c) €17 000 000 for the estimated implementation levels of extrabudgetary activities.

131. These amounts do not constitute a target for, or limitation on, funds and do not in any way prejudge the technical cooperation programme for 2018 and 2019.

C. Working Capital Fund

132. In its 60th regular session, the General Conference approved a continuation of the WCF at the level of €15 210 000 for 2017. No change in this level is proposed for 2018, although it should be borne in mind that the average monthly requirement of the Regular Budget exceeds the level of the WCF, which constitutes a significant risk to the Agency.

A. REGULAR BUDGET APPROPRIATIONS FOR 2018

The General Conference,

Accepting the recommendations of the Board of Governors relating to the Regular Budget of the Agency for 2018,[1]

1. Appropriates, on the basis of an exchange rate of $1.00 to €1.00, an amount of €365 262 275 for the operational portion of the Regular Budget expenses of the Agency in 2018 as follows:[2]

		€
1.	Nuclear Power, Fuel Cycle and Nuclear Science	39 844 081
2.	Nuclear Techniques for Development and Environmental Protection	40 479 534
3.	Nuclear Safety and Security	35 612 666
4.	Nuclear Verification	141 960 927
5.	Policy, Management and Administration Services	79 048 022
6.	Management of Technical Cooperation for Development	25 534 194
	Subtotal of Major Programmes	362 479 424
7.	Reimbursable work for others	2 782 851
	TOTAL	365 262 275

the amounts in the appropriation sections to be adjusted in accordance with the adjustment formula presented in Attachment A.1 in order to take into account the exchange rate variations during the year;

2. Decides that the foregoing appropriation shall be financed, after the deduction of:
   - Revenues deriving from Reimbursable Work for Others (Section 7); and
   - Other Miscellaneous Income of €550 000;

from contributions by Member States amounting, for an exchange rate of $1.00 to €1.00, to €361 929 424 (€313 495 189 plus $48 434 235), in accordance with the scale of assessment fixed by the General Conference in resolution GC(61)/RES/ ;

[1] GC(61)/4.

[2] Appropriation Sections 1–6 represent the Agency's major programmes.

3. Appropriates, on the basis of an exchange rate of $1.00 to €1.00, an amount of €8 059 381 for the capital portion of the Regular Budget expenses of the Agency, in 2018 as follows:[3]

	€
Nuclear Power, Fuel Cycle and Nuclear Science	-
Nuclear Techniques for Development and Environmental Protection	2 011 381
Nuclear Safety and Security	270 144
Nuclear Verification	2 016 000
Policy, Management and Administration Services	3 761 856
Management of Technical Cooperation for Development	-
TOTAL	8 059 381

the amounts in the appropriation sections to be adjusted in accordance with the adjustment formula presented in Attachment A.2 in order to take into account the exchange rate variations during the year;

4. Decides that the foregoing appropriation shall be financed from contributions by Member States amounting, for an exchange rate of $1.00 to €1.00, to €8 059 381 (€8 059 381 plus $0), in accordance with the scale of assessment fixed by the General Conference in resolution GC(61)/RES/ ;

5. Authorizes the transfer of the capital portion of the Regular Budget to the Major Capital Investment Fund; and

6. Authorizes the Director General:
   a. To incur expenditures additional to those for which provision is made in the Regular Budget for 2018, provided that the relevant emoluments of any staff involved and all other costs are entirely financed from revenues arising out of sales, work performed for Member States or international organizations, research grants, special contributions or other sources extraneous to the Regular Budget for 2018; and
   b. With the approval of the Board of Governors, to make transfers between any of the Sections listed in paras 1 and 3 above.

[3] Please refer to footnote 2.

ATTACHMENT

A.1 APPROPRIATIONS FOR THE OPERATIONAL PORTION OF THE REGULAR BUDGET IN 2018

ADJUSTMENT FORMULA IN EURO

		€		US$
1.	Nuclear Power, Fuel Cycle and Nuclear Science	34 260 336	+ (	5 583 746 /R)
2.	Nuclear Techniques for Development and Environmental Protection	36 169 391	+ (	4 310 143 /R)
3.	Nuclear Safety and Security	29 580 223	+ (	6 032 443 /R)
4.	Nuclear Verification	120 654 725	+ (	21 306 202 /R)
5.	Policy, Management and Administration Services	71 499 292	+ (	7 548 730 /R)
6.	Management of Technical Cooperation for Development	21 881 221	+ (	3 652 973 /R)
	Subtotal of Major Programmes	314 045 189	+ (	48 434 235 /R)
7.	Reimbursable work for others	2 782 851	+ (	- /R)
	TOTAL	316 828 040	+ (	48 434 235 /R)

Note: R is the average United Nations dollar to euro exchange rate which will be experienced during 2018.

ATTACHMENT

A.2 APPROPRIATIONS FOR THE CAPITAL PORTION OF THE REGULAR BUDGET IN 2018

ADJUSTMENT FORMULA IN EURO

		€		US$	
1.	Nuclear Power, Fuel Cycle and Nuclear Science	-	+ (	-	/R)
2.	Nuclear Techniques for Development and Environmental Protection	2 011 381	+ (	-	/R)
3.	Nuclear Safety and Security	270 144	+ (	-	/R)
4.	Nuclear Verification	2 016 000	+ (	-	/R)
5.	Policy, Management and Administration Services	3 761 856	+ (	-	/R)
6.	Management of Technical Cooperation for Development	-	+ (	-	/R)
	TOTAL	8 059 381	+ (	-	/R)

Note: R is the average United Nations dollar to euro exchange rate which will be experienced during 2018.

B. TECHNICAL COOPERATION FUND ALLOCATION FOR 2018

The General Conference,

(a) Noting the decision of the Board of Governors of June 2017 to recommend the Technical Cooperation Fund target of €85 665 000 for voluntary contributions to the Agency's Technical Cooperation Fund for 2018, and

(b) Accepting the foregoing recommendation of the Board,

1. Decides that for 2018 the target figure for voluntary contributions to the Technical Cooperation Fund shall be €85 665 000;

2. Allocates, in euro, contributions of €85 665 000 for the Agency's Technical Cooperation programme for 2018;

3. Urges all Member States to make voluntary contributions for 2018 in accordance with Article XIV.F of the Statute, with para. 2 of its Resolution GC(V)/RES/100 as amended by Resolution GC(XV)/RES/286 or with para. 3 of the former Resolution, as appropriate.

C. THE WORKING CAPITAL FUND FOR 2018

The General Conference,

Accepting the recommendations of the Board of Governors relating to the Agency's Working Capital Fund for 2018,

1. Approves a level of €15 210 000 for the Agency's Working Capital Fund for 2018;

2. Decides that the Fund shall be financed, administered and used in 2018 in accordance with the relevant provisions of the Agency's Financial Regulations;[4]

3. Authorizes the Director General to make advances from the Fund not exceeding €500 000 at any time to finance temporarily projects or activities which have been approved by the Board of Governors for which no funds have been provided under the Regular Budget;

4. Requests the Director General to submit to the Board of Governors statements of advances made from the Fund under the authority given in para. 3 above.

[4] INFCIRC/8/Rev.3.

PART II

The Agency's Programme and Budget 2018–2019
Details by Major Programme

Major Programme 1
Nuclear Power, Fuel Cycle and Nuclear Science

Introduction

Major Programme 1 provides scientific and technical support to Member States through: the provision of guidance; technical reports; review services; facilitating discussion on relevant topics; and the dissemination of data, information and knowledge. It also designs and, in partnership with Major Programme 6, delivers training and helps interested Member States to build capacity and to develop infrastructure necessary for managing various phases of a nuclear programme.

For Member States opting to use nuclear power for mitigating the effects of climate change and following the Paris Agreement, in 2015, nuclear power could become an integral component in their energy mix supporting energy security and the achievement of relevant Sustainable Development Goals (SDGs), in particular SDG 7 "Affordable and Clean Energy" and SDG 13 "Climate Action". The Agency will continue to support interested Member States to assess their future energy requirements and to evaluate and understand the potential for nuclear power to be part of their energy strategies, including in the context of achieving SDGs.

The Major Programme provides support for Member States considering, embarking on or expanding nuclear power programmes as well as those Member States with operating nuclear power plants to improve performance, achieve better life management, as well as ensure safe, secure, efficient and reliable long term operation. Support will continue to be provided for the development and deployment of small and medium sized or modular and innovative reactor systems and associated fuel cycles; along with the non-electric applications of nuclear energy and cogeneration technologies.

The Major Programme activities support uranium exploration, mining and milling. Efforts will continue to contribute to fuel cycle activities, especially in areas such as spent fuel integrity, design vulnerabilities, defueling and storage. Technical assistance will be strengthened for radioactive waste management (RWM), decommissioning of nuclear facilities and management of disused radioactive sealed sources as well as on-site and off-site remediation in the event of an accident. In view of increased demand in these areas, the new Subprogramme 1.2.5 Decommissioning and Environmental Remediation (D&ER) will be created and implemented by a new Section to be established in the Division of Nuclear Fuel Cycle and Waste Technology.

The Agency will continue its support to Member States with an interest in building, operating or accessing research reactors — including via regional centres, and upon request to those transitioning away from the use of high enriched uranium (HEU) in research reactors, where technically and economically feasible.

The Agency's support will continue in the field of nuclear knowledge management, including information management, dissemination and preservation.

The Agency will remain a reliable source of atomic, molecular and nuclear data. Training and the facilitation of experiments using various types of particle accelerator and other nuclear instrumentation will continue. With progress on the International Thermonuclear Experimental Reactor (ITER), the Agency will continue to support involvement of Member States in fusion technology and to facilitate links with partners in the ITER project. Collaboration will continue with the Abdus Salam International Centre for Theoretical Physics (ICTP), in Trieste, Italy, to support education and training for scientists, especially those from developing countries.

Objectives:
— *To expand and improve the use of current nuclear technologies in support of sustainable development, advance nuclear science and technology, catalyse innovation, and build up knowledge and expertise to support the existing and expanded use of nuclear power and nuclear science applications.*

Outcomes	Performance Indicators
• Use of Agency information and resources for tangible benefit to nuclear programmes in Member States.	• Number of Member States reporting tangible benefit in nuclear programmes through increased use of Agency information and resources.
• Improved understanding of the potential role of nuclear technologies, including nuclear power, to achieve SDGs for informed decision making through the wide use of Agency tools, methodologies, information, databases, training and expertise.	• Number of Member States and other international organizations requesting or utilizing the Agency's planning tools and other resources. • Number of direct engagement events (e.g. peer review missions, including Integrated Nuclear Infrastructure Review (INIR) and ARTEMIS missions as well as training workshops).
• Increased international cooperation in nuclear sciences for technological advancement.	• Number of institutions and Member States participating in the Agency's nuclear science activities, and number of resultant products, including documents.

Projects

Title	Main Planned Outputs
1.0.0.001 Overall management, coordination and common activities	Guidance, reports, policy documents, internal and external communications.

Programme 1.1 Nuclear Power

Programme 1.1 supports the operation of nuclear power plants in Member States, and contributes to enhancing performance and to ensuring safe, secure, efficient and reliable long term operation. Additional support is provided to expanding nuclear programmes, including human resource development and the implementation of integrated management systems. The Programme also continues to support Member States embarking on new nuclear power programmes, by assisting them in building sound nuclear infrastructure for the successful introduction of nuclear power plants and for their safe, secure, efficient and reliable long term operation. In this, the Programme coordinates services with all other Agency departments and in particular the Department of Nuclear Safety and Security.

The Programme provides a forum for technology users and holders to jointly consider innovations and supports Member States in their long range planning through the International Project on Innovative Nuclear Reactors and Fuel Cycles (INPRO). INPRO implements collaborative projects and provides services including scenario based nuclear energy system (NES) analysis and assessment of sustainability. Furthermore, the Programme supports research, innovation and technical advancement by helping to resolve issues associated with advanced nuclear power reactors and their non-electric applications. This is achieved by coordinating research, promoting the exchange of information, supporting education and training, developing toolkits and analysing data and results for various advanced reactor technologies.

Lessons learned from reviews, assessment, evaluations: Member States operating nuclear facilities and Member States interested in expanding or starting nuclear power programmes are expecting that the Agency continues to disseminate best practices through new and updated publications, support the exchange of information on technical engineering and human resource developments to foster the drive to excellence, and continue to provide tailored review and assistance services through its regular business plan delivery programmes. Member States appreciate the new Regional Training Workshop activities and other services that INPRO provides. Member States have recommended that assistance and support should continue to be provided for development and deployment of evolutionary and innovative nuclear technologies and their non-electric applications.

Specific criteria for prioritization:

1. Activities supporting Member States' efforts in enhancing performance and ensuring safe, secure, efficient and reliable long term operation of both existing and new nuclear power plants.
2. Activities supporting the development of nuclear infrastructure and human resource capacity building in Member States embarking on a nuclear power programmes.
3. Activities to maintain and increase international dialogue and cooperation to promote long term nuclear energy strategies and innovations in nuclear energy related technology in support of NES sustainability. Activities supporting Member States and stakeholders in accelerating development and deployment of

advanced reactor technologies and related applications by sharing up to date information and providing methods and tools in support of the sustainable use of nuclear energy.

Programmatic changes and trends

Subprogramme 1.1.1 Strengthening Integrated Engineering Support for Nuclear Power Programmes continues its focus on existing nuclear power plants and new nuclear power projects. This includes support to Member States in plant life management to: enhance performance and ensure safe, secure, efficient and reliable long term operation of NPPs and engineering support for all stages of nuclear projects, including support to Member States embarking on, or expanding, their nuclear power programme. To optimize the operation and maintenance costs, it is essential to support Member States for operational efficiencies and effectiveness. For risk management of nuclear projects in Member States expanding their nuclear power programme, it is necessary to collect and disseminate best practices and lessons learned in the construction, operation and transition management of nuclear power plants.

Subprogramme 1.1.2 Management and Human Resource Development for Nuclear Power continues to focus on the management and human resource development in Member States embarking on, or expanding, their nuclear power programmes. This includes the management system, human resource development, bid preparation and evaluation and contracting, stakeholder involvement, development of strategies and e-learning module.

Subprogramme 1.1.3 Infrastructure and Planning for New Nuclear Power Programmes is the point of integration for such activities throughout Major Programme 1 and for their coordination across the Agency, and so some of these activities are implemented in conjunction with technical staff from other sections. The current workload is mostly supported by extrabudgetary funds. In 2018–2019, the activities will be prioritized to support countries that have made a national decision and are actively developing their nuclear power infrastructure, and on countries starting construction, preparing to commission and starting commercial operation of their first nuclear power plants. Additionally, efforts will be increased towards improving the quality, consistency and effectiveness of Agency assistance to the countries that are expressing interest in nuclear power for the first time but have not yet made a national decision.

Subprogramme 1.1.4 International Project on Innovative Nuclear Reactors and Fuel Cycles and INPRO's focus will remain on national, regional and global nuclear energy sustainability issues and related cooperation among INPRO members. INPRO activities will continue to include assistance to Member States with nuclear energy system assessments (NESAs), nuclear energy scenario analysis, collaborative projects, and further development of tools for NESA and scenario analyses. Moreover, provision of training services and guidance to Member States on the application of INPRO products will continue. The new INPRO Vision 2018–2023 (Strategic Plan) is being prepared in 2017.

Subprogramme 1.1.5 Technology Development for Advanced Reactors and Non-Electric Applications supports the development and deployment of evolutionary and innovative nuclear power reactors. Deployment of advanced fast reactors in Member States is expected to lead to greater energy recovery from nuclear fuel and a significant reduction in radioactive waste and its toxicity. Member States' interest in small and medium sized or modular reactors (SMRs) continues, and this subprogramme addresses specific deployment challenges. Advances in computer technology are helping to develop multiscale and multiphysics simulation platforms, which require a large effort on their qualification and validation by means of suitable experimental data. There will be an increased focus on increasing thermal efficiency of nuclear power plants by facilitating the deployment of non-electric applications and nuclear cogeneration. The advancements in high temperature gas cooled reactors (HTGRs) would further enhance nuclear industrial applications.

Objectives, Outcomes and Performance Indicators by Programme

Programme 1.1 Nuclear Power

Objectives:

- *To support Member States with existing nuclear power plants to enhance performance and ensure safe, secure, efficient and reliable long term operation, including development of human resource capability, leadership and management systems.*
- *To assist Member States embarking on new nuclear power programmes in planning and building their national nuclear infrastructures, including development of human resource capability, leadership and management systems.*
- *To provide methods and tools to support modelling, analyses and assessments of future NESs for sustainable development of nuclear energy, and collaborative frameworks and support for technology development and deployment of advanced nuclear reactors and non-electric applications.*

Outcomes	Performance Indicators
• Use of Agency mechanisms and efficient and reliable long term operation and life cycle management of existing nuclear power plants, including improved management system, human resource and workforce capability.	• Number of Member States reporting use of relevant Agency resources, including Nuclear Energy Series publications, guidelines, recommendations and databases. • Number of Member States reporting use of Agency resources for management system, human resource and workforce capability within existing nuclear power programmes.
• Improved awareness of infrastructure issues and related action plans in Member States embarking on a nuclear power programme; improved understanding of planning, constructing and commissioning of the first nuclear power plant.	• Number of self evaluations, INIR and INIR follow-up missions. • Number of Member States using guidance material for nuclear power infrastructure development.
• Increased cooperation on global nuclear energy sustainability, long term nuclear energy strategies, and on nuclear reactor technology development and non-electric applications.	• Number of INPRO members participating in INPRO collaborative projects, the INPRO Dialogue Forum, and using INPRO tools, services and publications. • Number of Member States and stakeholders cooperating in evolutionary and innovative nuclear reactor technology development and applications under Agency coordination.

Subprogramme 1.1.1 Strengthening Integrated Engineering Support for Nuclear Power Programmes

Objectives:

- *To support Member States for safe, secure, efficient and reliable long term operation of nuclear power plants.*
- *To support Member States for enhancing effectiveness of engineering processes of new nuclear power plant projects.*

Outcomes	Performance Indicators
• Use of Agency expertise and guidance and best practices in the area of engineering to support implementation of new nuclear power plant projects.	• Number of Member States using the relevant Agency resources, Nuclear Energy Series publications, guidelines, recommendations and databases.
• Use of Agency expertise and guidance in establishing and implementing best practices in the area of engineering support, including safety aspects, and advanced applications to improve performance in operating nuclear power plants.	• Number of Member States using the relevant Agency resources, Nuclear Energy Series publications, guidelines, recommendations and databases.

Projects

Title	Main Planned Outputs
1.1.1.001 Engineering support for operating nuclear power plants	Nuclear Energy Series publications on specific aspects of ageing management, exchange of information and national experience among Member States through Technical Meetings, workshops or conferences for the promotion of networking, as experience sharing in the field of nuclear power plant operation.
1.1.1.002 Engineering support for expanding and new nuclear power projects	Nuclear Energy Series publications on specific aspects of expanding nuclear power projects and exchange of information and national experience among Member States through Technical Meetings, workshops in the field of nuclear power plant construction management and technology.

Subprogramme 1.1.2 Management and Human Resource Development for Nuclear Power

Objectives:

— *To advance the development of human resource capability, capacity building, leadership, management systems and stakeholder involvement to support safe, secure, efficient and reliable long term nuclear power.*

Outcomes	Performance Indicators
• Use of Agency mechanisms and guidance for effective management of nuclear power programmes.	• Number of Member States using the Agency's resources, Nuclear Energy Series publications, guidelines, recommendations and e-learning modules.
• Use of Agency documents, materials and expertise, and consideration of lessons learned for effective human resource development and capacity building for new nuclear power projects.	• Number of Member States using the Agency's resources, Nuclear Energy Series publications, guidelines, recommendations and e-learning modules.

Projects

Title	Main Planned Outputs
1.1.2.001 Support to management systems, leadership and stakeholder involvement	Nuclear Energy Series publications, exchange of information and direct support services.
1.1.2.002 Human resource development for nuclear power programmes	Nuclear Energy Series publications, training courses, workshops, e-learning modules and review services.

Subprogramme 1.1.3 Infrastructure and Planning for New Nuclear Power Programmes

Objectives:

— *To support Member States in improving understanding of the responsibilities and obligations essential to implementing safe, secure, efficient and reliable long term nuclear power programmes.*

— *To support Member States in developing the necessary infrastructure for introducing nuclear power.*

— *To provide integrated and coordinated Agency support to Member States embarking on a nuclear power programme.*

Outcomes	Performance Indicators
• Use of Agency's documents and guidance on infrastructure issues and related action plans in Member States embarking on a nuclear power programme.	• Number of INIR recommendations and suggestions implemented. • Number of Member States using the Agency's resources, Nuclear Energy Series publications, guidelines, recommendations and e-learning modules.

Outcomes	Performance Indicators
• Use of Agency's documents and guidance pertaining to planning, constructing and commissioning of the first nuclear power plant.	• Number of Member States participating in technical meetings and technical workshops; and requests for training. • Number of participants attending workshops on relevant topics.

Projects

Title	Main Planned Outputs
1.1.3.001 Nuclear power infrastructure development	Enhancement of the INIR methodology, implementation of INIR services, updating of integrated work plans and coordination and implementation of assistance to newcomer Member States.
1.1.3.002 Support to capacity building for nuclear power infrastructure	Publications, training/capacity building packages (including e-learning) for Milestone Issues; refinement of the "Newcomer Platform", including Nuclear Infrastructure Development Activities and Competencies framework, country nuclear infrastructure profiles; advisory and information sharing activities.

Subprogramme 1.1.4 International Project on Innovative Nuclear Reactors and Fuel Cycles

Objectives:

- *To maintain and increase international dialogue and cooperation regarding actions required to achieve global NES sustainability in the 21st century.*
- *To promote long term nuclear energy strategies that will lead to NES sustainability.*
- *To promote innovations in nuclear energy related technology and institutions that will lead to improvements in NES sustainability.*

Outcomes	Performance Indicators
• Contribute to improvement of understanding of, and enhanced international agreement and cooperation on, actions required to achieve global NES sustainability in the 21st century.	• Number of Member States participating in INPRO collaborative projects, the INPRO Dialogue Forum, training, and using INPRO tools, services and publications.
• Increased use of the INPRO tool set, including NES scenario modelling and analysis and the INPRO Methodology to measure and indicate progress towards NES sustainability.	• Number of Member States using, and contributing to, development of INPRO tools (INPRO Methodology and NES modelling and analysis tools).
• Broadened communication between Member States and training on INPRO tools to evaluate technological and institutional issues associated with NES sustainability.	• Number of Member States participating in the INPRO Dialogue Forum, regional training and other INPRO training opportunities that enhance Member State knowledge and communications on NES sustainability.

Projects

Title	Main Planned Outputs
1.1.4.001 International Project on Innovative Nuclear Reactors and Fuel Cycles	Publications on: NES development scenario modelling, collaborative projects on selected NES innovations, application and further development of INPRO Methodology for sustainability assessment of NES, INPRO Dialogue Forums on NES sustainability, and related training and outreach.

Subprogramme 1.1.5 Technology Development for Advanced Reactors and Non-electric Applications

Objectives:

- *To provide a collaborative framework and to improve understanding among Member States on advances in reactor technologies critical to safety, efficiency improvement, and economics of nuclear power plants.*
- *To catalyse evolution and innovation in nuclear reactor technology and non-electric application.*
- *To support Member States in the demonstration of nuclear desalination projects.*
- *To support Member States in in the area of non-electric applications for advancing thermal efficiency of nuclear power plants.*

Outcomes	Performance Indicators
• Use and active interest of Member States in the information published on technology development and technical solutions in advanced reactors.	• Number of Member States and stakeholders collaborating through the Agency to share information and to conduct collaborative R&D to resolve common challenges.
• Agency publications that share expert knowledge and tools to resolve evolving challenges for newcomers and in technology development areas.	• Number of Member States and stakeholders using Agency provided information and seeking Agency expertise for conducting workshops and training.
• Member States participation and pooling of resources for developing and publishing technology solutions.	• Number of Member State and stakeholder requests for addressing solutions to common problems.

Projects

Title	Main Planned Outputs
1.1.5.001 Technology development for water cooled reactors (WCRs)	Newcomer support for safe, efficient and economical deployment of WCRs, Nuclear Energy Series publications, databases, technological advances of advanced water cooled reactors, coordinated research projects (CRPs) on technology development, international conferences, technical meetings, workshops, training sessions support.
1.1.5.002 Technology development for small and medium sized or modular reactors (SMR)	Technical meetings, workshops, CRPs and publications on key enabling technologies, safety features and common deployment issues for SMRs; assistance to Member States in understanding SMR technology and safety characteristics as well as in performing technology assessments; Nuclear Energy Series publication describing an SMR technology roadmap for SMR deployment.
1.1.5.003 Advanced technology for fast and gas cooled reactors	TMs, workshops, Education and training seminars, CRPs, technical studies, Nuclear Energy Series publications, TECDOCs, Status Reports, web sites, databases, e-platforms and simulators on research, technology development and deployment of fast nuclear systems and gas cooled reactors. Organization of the FR17 Conference.
1.1.5.004 Non-electric applications of nuclear power	Refinement, maintenance and upgrading of Agency software DEEP, HEEP, DE-TOP, WAMP, SAMG-D, toolkits on nuclear desalination and nuclear hydrogen production; support to Member States on the demonstration of non-electric applications projects and on efficiency improvement in nuclear power plants.

Programme 1.2 Nuclear Fuel Cycle and Waste Management

Programme 1.2 addresses the nuclear fuel cycle, from uranium exploration to spent fuel management, from handling of operational waste to D&ER to geological disposal. It also assists Member States in management of waste arising from nuclear facilities, research reactors or applications of radioactive sources (e.g. health and food). Capacity building and sharing of information is a priority in all areas.

With rapidly growing interest in the peaceful applications of nuclear science and technology, including nuclear power in Member States, it is expected that demand for support in nuclear fuel cycle and waste management will also increase. The Programme will continue to provide support for strengthening the safety and sustainability, as well as innovation, in the design of nuclear fuel cycle and waste management facilities. The retirement of nuclear facilities generates an increased demand in decommissioning and in effective solutions for waste management. In addition, the Programme will: (i) further strengthen the coordination with other Agency departments to provide Member States with a comprehensive approach as well as integrated services; (ii) increase the outreach and access to information and best practices through developing and updating different tools such as e-learning, databases and web based networks of best practices; and (iii) encourage and support the development of a centre of reference in each region on topics such as source management and decommissioning.

The Programme will continue to contribute to: (i) the assessment of uranium resources for the sustainability of nuclear energy (ii) analysis of fuel cycle and waste management aspects of innovative technologies; (iii) encouraging research for optimizing fuel performance and safety. Identification of best practices on processes and technology, including lessons learned from Fukushima, will remain high priority.

Lessons learned from reviews, assessment, evaluations: The expansion of the scope of the Programme to cover nuclear fuel cycle and waste management allows strengthened cooperation and synergies between the different fields. A strong cooperation is maintained with the Department of Nuclear Safety and Security. There is growing request for guidance and support in D&ER from Member States, as more facilities reach the end of their life. The demand for peer review services is also expected to increase.

Specific criteria for prioritization:

1. Capacity building and the transfer of experience to support achievement of the SDGs, especially in countries without (or with a small) nuclear power programme, including embarking countries.
2. Support for the sustainable utilization of nuclear technologies, including safety and innovation of the nuclear fuel cycle and of waste management planning and technologies.
3. Dissemination of information, such as activities fostering international cooperation, the exchange of information, and the establishment of reference databases on nuclear fuel cycle and waste management issues.

Programmatic changes and trends

The expansion of ***Subprogramme 1.2.1 Uranium Resources and Processing*** activities in the previous biennia (2014–2017) reflects the increased emphasis being placed on the uranium production cycle and on support to Member States initiating activities in this area. The interest of Member States over the next few years will be in activities pertaining to supply continuity, with a steady demand for Agency's services in this area. Ongoing low prices of uranium will probably decrease some Member States' interest in the short term.

Subprogramme 1.2.2 Nuclear Power Reactor Fuel will continue to meet Member States' needs, especially in the implementation of new IAEA safety standards when operating or upgrading their nuclear fuel cycle facilities. The IAEA Low Enriched Uranium (LEU) Bank project[1] which is fully funded through extrabudgetary contributions is expected to continue to make progress towards its operation.

Subprogramme 1.2.3 Management of Spent Fuel from Nuclear Power Reactors will broaden its scope of activities to address both the technical issues relating to the transport of nuclear materials (including spent fuel) and the strategies and opportunities for spent fuel management in the horizon 2050/2100.

[1] Other assurance of supply mechanisms established with IAEA include a guaranteed physical reserve of LEU maintained by the Russian Federation at the International Uranium Enrichment Centre in Angarsk, Russian Federation (ref: GOV/2009/76 and GOV/2009/81), and a UK assurance of supply guaranty for supplies of LEU enrichment services (ref: GOV/2011/10 and GOV/2011/17).

Subprogramme 1.2.4 Technology for Radioactive Waste Management and Disposal following the creation of the new Subprogramme 1.2.5, will retain four of the projects dealing with technological aspects of RWM and that are thematically organized, covering: (i) predisposal; (ii) disposal of radioactive waste; (iii) disused sealed radioactive source (DSRS) management; and (iv) capacity building and knowledge sharing. The previous project on Action Plan support related to RWM technology ceased to exist at the end of the 2016–2017 biennium.

Subprogramme 1.2.5 Decommissioning and Environmental Remediation is proposed as a new subprogramme encompassing two projects — D&ER — and a new Section on D&ER will be established. This change has been introduced owing to a growing request for guidance and support from Member States in these areas.

Objectives, Outcomes and Performance Indicators by Programme

Programme 1.2 Nuclear Fuel Cycle and Waste Management

Objectives:

— *To raise awareness and promote the implementation of a safe and sustainable fuel cycle and life cycle management for nuclear energy programmes and nuclear applications users, and contingency planning for post-incident situation.*

— *To support Member States in strengthening their own capabilities and trained human resources, or having access to the best available knowledge, technologies, services.*

Outcomes	Performance Indicators
• Increased use of Agency mechanisms and guidance for increasing awareness of the sustainability dimension in fuel cycle programmes and waste management, including DSRS.	• Number of Member States using Agency resources for awareness of the sustainability of fuel cycle programmes and waste management policies, including DSRS. • Number of Member States requesting or providing experts in peer review services such as ARTEMIS.
• Increased international cooperation to develop innovative and safe technologies, especially in the fields of nuclear fuel, waste management and decommissioning.	• Active participation in Agency driven CRPs. • Involvement of Member States in Technical Meetings, forums and networks.
• Stronger regional capabilities in areas such as uranium mining, spent fuel management, D&ER remediation, and waste arising from nuclear applications.	• Establishment of centres of reference. • Number of Member States using Agency's e-learning and other on-line training material, including case studies.

Subprogramme 1.2.1 Uranium Resources and Processing

Objectives:

— *To support Member States in improving their capacity to understand, plan and develop activities in the uranium or thorium production cycle, through Agency guidance on good practices, publications, peer reviews, training and databases.*

Outcomes	Performance Indicators
• Enhanced availability of accurate and up to date references on global uranium (or thorium) resources to Member States.	• Number of requests for the joint OECD/NEA–IAEA publication entitled *Uranium Resources, Production and Demand*.
• Increased Member States' use of technical information on technologies relating to the exploration and production of uranium or thorium.	• Number of Member States using Agency publications, codes and databases.
• Increased dissemination of best practices in the uranium (or thorium) production cycle (exploration and production).	• Number of participants in Agency training courses on good practices in the uranium production cycle.

Projects

Title	Main Planned Outputs
1.2.1.001 Exploration, mining and processing	Biennial publication of the joint OECD/NEA–IAEA publication entitled *Uranium Resources, Production and Demand*; well maintained uranium and thorium deposit databases; publications on the Milestone Approach in uranium mining; meetings and TECDOCs supporting good practice in uranium and thorium production cycles.

Subprogramme 1.2.2 Nuclear Power Reactor Fuel

Objectives:

- *To support Member States to understand and address factors affecting the design, fabrication and in-pile behaviour of currently operated and innovative nuclear fuels and materials.*
- *To support Member States to technically implement new IAEA safety standards when operating or upgrading existing nuclear fuel cycle facilities, and to understand and address factors affecting the ageing of these facilities.*

Outcomes	Performance Indicators
• Dissemination of information to Member States on R&D challenges induced by the design, manufacture and operation of advanced, innovative fuels for water cooled and fast reactors.	• Number of Member State experts participating in Agency meetings and workshops on reactor fuel engineering and performance assessment, who acknowledge using the scientific information delivered or shared by the IAEA in their professional activities.
• Dissemination of information to Member States on technical challenges induced by the application of (new) IAEA safety standards to nuclear fuel cycle facilities.	• Number of Member State experts participating in Agency's meetings and workshops on technical challenges induced by the application of IAEA safety standards on nuclear fuel cycle facilities, who acknowledge using the Agency's technical guides.

Projects

Title	Main Planned Outputs
1.2.2.001 Nuclear power reactor fuel engineering and performance	Publications on challenges of advanced nuclear fuels (design, fabrication, operation and performance assessment) for pressurized (heavy) water reactors and fast reactors; guides on technical solutions to apply IAEA safety standards to nuclear fuel cycle facilities (e.g. ageing management, instrumentation and control, quality control and environmental impacts).
1.2.2.002 LEU Bank	Establishment of an IAEA LEU Bank in accordance with GOV/2010/67 and GOV/2010/70.

Subprogramme 1.2.3 Management of Spent Fuel from Nuclear Power Reactors

Objectives:

- *To support Member States in addressing the challenges of effective and safe management of spent nuclear fuels at operating or prematurely shut-down sites.*
- *To support Member States in addressing the challenges of effective and safe transport of all types of nuclear material used or generated within the fuel cycle.*
- *To facilitate discussion and sharing of information among Member States relating to recent and future developments in fuel recycling technologies for current and next generations of nuclear power reactors.*

Outcomes	Performance Indicators
• Dissemination of Agency's guidelines on effective and safe management of their spent nuclear fuel through dry and/or wet storage at operating sites.	• Number of Member States using the Agency guidelines. • Number of CRPs supported.
• Dissemination of information on effective and safe transport of nuclear materials used or generated within the fuel cycle.	• Number of Member States' experts participating in Agency meetings and workshops on the safe transport of nuclear materials that acknowledge using the scientific information delivered or shared by the IAEA in their professional activities.
• Dissemination of information on technological issues in advanced fuel cycles with regard to current and next generations of nuclear power reactors.	• Number of Member State representatives participating in Agency meetings on advanced fuel cycles that acknowledge using the scientific information delivered or shared by the IAEA in their professional activities.

Projects	
Title	**Main Planned Outputs**
1.2.3.001 Spent fuel storage and transport	TECDOCs on spent fuel inventories, storage technologies and transport; coordination of CRPs (on performance assessment/demonstration of spent fuel safe long term storage, on ageing management programmes and on damaged fuel/corium management); e-learning modules development; International Conference on spent fuel management.
1.2.3.002 Spent fuel recycling	Technical Meetings on closed fuel cycle status and development; .CRP on advanced recycling paths; e-learning modules development.

Subprogramme 1.2.4 Technology for Radioactive Waste Management and Disposal

Objectives:

- *To support Member States in strengthening their infrastructure and capabilities, and in improving their practices in RWM.*
- *To support Member States embarking on a nuclear power programme and those Member States with smaller/less established programmes, to plan and develop necessary RWM infrastructure, policies and strategies, and human resource capacities and capabilities to deal with waste issues.*
- *To facilitate experience sharing and knowledge transfer on effective applications of practical solutions in RWM, including stakeholder engagement, with particular attention to DSRSs.*

Outcomes	Performance Indicators
• Use of Agency guidance to strengthen capabilities and share practices in RWM.	• Number of Member States using Agency guidance in developing a national policy and strategy for RWM.
• Increased dissemination of information among newcomers on the importance of addressing the RWM issue early on.	• Number of Member States embarking on a nuclear power programme using Agency information in developing their national policy and/or strategy for RWM.
• Use of Agency guidance to address challenges from DSRSs, including the establishment of regional centres of reference.	• Number of Member States using Agency guidance to meet the challenges of managing DSRS.

Projects

Title	Main Planned Outputs
1.2.4.001 Predisposal management and transport	Publications, development of lecture materials (e-learning) and conducting training.
1.2.4.002 Waste disposal	Publications, web based information material, meetings and network development.
Title	**Main Planned Outputs**
1.2.4.003 Managing disused sealed radioactive sources (DSRS)	Guidance documents on the management of DSRSs; training to Member States on DSRS conditioning, and removal and securing, upon request, high activity DSRS through repatriation, recycling or consolidation in a national store; support of the International Catalogue of Sealed Radioactive Sources and Devices.
1.2.4.004 Knowledge sharing and capacity building	Maintained, updated and improved web based systems on RWM and D&ER.

Subprogramme 1.2.5 Decommissioning and Environmental Remediation	
Objectives:	
— *To support Member States in strengthening their capabilities and improving their practices in decommissioning of installations and remediation of contaminated sites.* — *To support Member States embarking on a nuclear power programme and developing countries to plan and develop the necessary decommissioning infrastructure, policies and strategies, and human resource capacities and capabilities to deal with the challenges of D&ER.* — *To facilitate experience sharing and knowledge transfer on effective applications of practical solutions in decommissioning of installations and environmental remediation of contaminated sites.*	
Outcomes	**Performance Indicators**
• Dissemination of information to Member States on the decommissioning of nuclear installations and remediation of contaminated sites.	• Number of Member States using Agency information in developing their national policy and strategy for D&ER. • Number of practical case studies posted and described in the International Decommissioning Network (IDN),) Decommissioning Wiki and other shared networks.
• Increased dissemination of information among embarking countries on the importance of addressing the related D&ER issues early on.	• Number of Member States embarking on a nuclear power programme using Agency information in developing their national policy and strategy for D&ER.
Projects	
Title	**Main Planned Outputs**
1.2.5.001 Decommissioning	Publications; activities organized with the IDN.
1.2.5.002 Environmental remediation	Publications; activities organized with the Network on Environmental Management and Remediation (ENVIRONET).

Programme 1.3 Capacity Building and Nuclear Knowledge for Sustainable Energy Development

Nuclear energy contributes significantly to energy security, mitigating climate change and promoting sustainable development. IAEA projections show continued growth of nuclear power for the coming decades. With the adoption of the SDGs and the Paris Agreement, in 2015, the Agency can play an important role in helping Member States to achieve their national SDGs and Paris Agreement targets through continued improvement of energy planning tools, information repositories and methodologies. The widely distributed IAEA energy models and associated expert training and assistance enable Member States to formulate sustainable energy strategies. 3E (energy–economy–environment) analyses inform Member States on the potential opportunities, costs and benefits from using nuclear power in climate change mitigation and achievement of the SDGs. Member States can access relevant and reliable collections of nuclear information and data through the International Nuclear Information System (INIS) and the IAEA Library.

IAEA nuclear knowledge management methodologies and initiatives are increasingly recognized as a source of important guidance for Member States, in particular those expanding, or embarking on, nuclear power programmes, to preserve and accumulate valuable nuclear knowledge and to implement effective nuclear management programmes at national and organizational levels. Programme 1.3 provides nuclear knowledge management methodologies and service, maintenance and dissemination of valuable information and data, as well as targeted training and services to Member States to increase their capacity to use nuclear energy technology in a safe, secure and sustainable manner.

Lessons learned from reviews, assessment, evaluations: Taking into account feedback concerning Member States' needs, energy planning models will be improved and made more widely available; e-learning content will be increased and promoted through a standardized platform; guidance to Member States on cost estimation and financing schemes relevant to nuclear energy programmes will be enhanced, within the mandate of the Agency; support to nuclear educational programmes will be increased; advances in IT technology will be leveraged to improve collection and dissemination of information and data; high impact CRPs relating to the SDGs and knowledge management will be organized; high quality documents will be published.

Specific criteria for prioritization:

1. Enhancing capacities in Member States to undertake robust energy planning and system analysis and to appreciate the socioeconomic and environmental implications of nuclear energy.
2. Improve the understanding of the role of nuclear power in mitigating the effects of climate change and achieving the SDGs by providing objective and accurate information.
3. Assisting Member States to ensure the safety, security and sustainability of peaceful uses of nuclear energy through easily accessible nuclear information and widely disseminated nuclear knowledge management methodologies.

Programmatic changes and trends

Subprogramme 1.3.1 Energy Modelling, Data and Capacity Building will, in view of the recent developments with regard to the SDGs and the Paris Agreement, place more emphasis on assisting Member States in integrating the SDGs and Paris Agreement targets in national and regional energy studies. The energy planning models will be enhanced to meet this new emphasis, along with the feedback received from the current 130 Member States using these tools. Via the creation of e-learning packages, e-training will be expanded to supplement face to face training; energy and technology data sharing with other international organizations, such as the European Commission Joint Research Centre, will be further expanded.

Subprogramme 1.3.2 Energy–Economy–Environment (3E) Analysis will support the SDGs which relate to nuclear energy in the global energy context. New areas include efforts: (i) to develop methodology for assessing sustainability of future nuclear reactors (including SMRs) within systems consisting of greater shares of renewable energy; (ii) to establish cost estimating methodologies for the assessment of nuclear energy technology and fuel cycle costs, and to continue development of nuclear cost modelling capabilities in partnership with other international organizations; (iii) to increase attention to macroeconomic impacts from nuclear programme and nuclear finance schemes, particularly for newcomer countries; and (iv) to assist Member States in developing their National Determined Contributions in consideration of the SDGs and the Paris Agreement under a range of deployment scenarios.

Subprogramme 1.3.3 Nuclear Knowledge Management (NKM) will continue to expand support to Member States. Extrabudgetary support is expected to continue for the Nuclear Energy Management School, the International Nuclear Management Academy and the Human Resource and Knowledge Development networking initiative. Particular interest has been shown for pilot NKM programmes in Africa focused on stakeholder initiatives for education capability, assessment and planning processes and for university based Knowledge Incubation Centres for Science, and Technology Adoption, Resourcing and Transfer (KIC-START) programmes. Member State participation continues to increase in the Agency's NKM programmes, including activities on nuclear education and networking, NKM schools and e-learning tools and material made available through the Cyber Learning Platform for Nuclear Education and Training (CLP4NET). Priorities remain NKM methodology development supporting quality nuclear university education, knowledge organization system technology and life cycle management of design knowledge, and establishing and strengthening knowledge networks such as technical communities of practice.

Subprogramme 1.3.4 Nuclear Information will continue to gather and make available to Member States, and within the IAEA Secretariat, reliable nuclear information on the peaceful use of nuclear energy through INIS, the IAEA Library and the International Nuclear Library Network (INLN) to Member States and within the Secretariat.

Objectives, Outcomes and Performance Indicators by Programme

Programme 1.3 Capacity Building and Nuclear Knowledge for Sustainable Energy Development
Objectives:
— *To support Member States in strengthening their capacities to elaborate robust energy strategies, plans and programmes, and to improve the understanding of nuclear technology's contribution in achieving the SDGs.* — *To support Member States in strengthening their capacities to establish, manage and utilize their nuclear knowledge base by disseminating knowledge management methodologies, guidance and tools.* — *To acquire, preserve and provide information in the area of nuclear science and technology to facilitate sustainable information sharing among Member States.*

Outcomes	Performance Indicators
• Increased use of Agency energy planning tools, expertise and information by Member States.	• Number of experts from Member States trained in the use of Agency energy models. • Number of instances where Agency's economic or 3E analyses relating to nuclear technology are requested, or incorporated into the decision making process of Member States or other international agencies or organizations relating to nuclear energy and energy policy.
• Increased use by Member States of initiatives, services and assistance on NKM.	• Number of Member States using or requesting Agency methodology, guidance and tools.
• Open access for Member States and the Agency to relevant, reliable and up to date information resources through INIS and the IAEA Library.	• Number of INIS repository searches. • Number of available records in the INIS repository.

Subprogramme 1.3.1 Energy Modelling, Data and Capacity Building

Objectives:

— *To support Member States in strengthening their capacities to elaborate their energy strategies for meeting the SDGs and to conduct studies for energy system and electricity sector development, investment planning and energy/environmental policy formulation.*

Outcomes	Performance Indicators
• Member States have access and the knowledge to effectively use Agency energy planning tools for designing energy strategies to meet their SDGs.	• Number of experts from Member States trained in the use of Agency energy models.
• Maintaining updated information on energy and nuclear power status and trends.	• Number of requests from Member States and international organizations for data on energy and nuclear power.

Projects

Title	Main Planned Outputs
1.3.1.001 Energy, electricity and nuclear power economics: Status and trends	Updated information on status and trends of energy, electricity and nuclear power development in different world regions; updated internal and external web sites; publication of Reference Data Series No. 1.
1.3.1.002 Models and capacity building for energy and nuclear power planning	Technical support for Member States' energy planning studies; enhanced analytical tools (models) applicable in widely diverse country situations; training courses.

Subprogramme 1.3.2 Energy–Economy–Environment (3E) Analysis

Objectives:

— *To support Member States in assessment of nuclear technology's contribution to national sustainable development objectives and its possible contributions to macroeconomic development, climate protection and energy security.*

— *To help Member States develop their Nationally Determined Contributions in consideration of the SDGs under a range of deployment scenarios, including new builds, ramp-up of large nuclear programmes, SMRs, nuclear/renewable integration and non-power applications.*

Outcomes	Performance Indicators
• Provision of information on nuclear technoeconomics and the role of nuclear power in climate change and sustainable development to Member States and relevant organizations.	• Number of instances where Agency's economic or 3E analyses relating to nuclear technology are requested, or incorporated into the decision making process of Member States or other international agencies or organizations relating to nuclear energy and energy policy. • Number of publications in the area of 3E analysis.

Outcomes	Performance Indicators
• Provision of information to Member States on the potential role of nuclear power in their Nationally Determined Contributions under the Paris Agreement and broader sustainable energy strategies.	• Number of instances where IAEA Member States addressing nuclear power in the updates of their Nationally Determined Contributions have requested or incorporated Agency analysis, expertise or contributions into their decision making process.

Projects

Title	Main Planned Outputs
1.3.2.001 Technoeconomic analysis	Economic studies (feasibility studies, cost assessments, comparisons, cost effectiveness and cost–benefit analyses) of various issues in nuclear energy development and deployment, including innovative nuclear systems and SMRs; comparative assessments of energy systems and their attributes.
1.3.2.002 Topical issues relating to sustainable energy development	Reports, presentations on the potential contribution of nuclear energy to the SDGs and Paris Agreement objectives; case studies and country profiles analysing sustainable energy and low carbon energy development strategies focusing on the potential for nuclear energy.

Subprogramme 1.3.3 Nuclear Knowledge Management (NKM)

Objectives:

- *To support Member States in their application of NKM strategies and approaches through the development and dissemination of Agency methodology, guidance and tools, their implementation in national programmes, and by providing knowledge management services and assistance.*
- *To enhance capability of Agency nuclear information and knowledge resources and services providing support and guidance to Member States in applying advanced technologies for sustainable nuclear information management over the life cycle to strengthen the safety and the economics of peaceful uses of nuclear technology.*
- *To support, strengthen and enhance university education in Member States in the areas of nuclear technology management, nuclear engineering, nuclear science and nuclear applications, and all networking, collaboration, methodology development, and resource development and sharing.*

Outcomes	Performance Indicators
• Increased use of Agency methodologies and guidance by Member States in the application of NKM strategies and approaches and in the implementation of national or organizational level programmes as a result of Agency knowledge management services and assistance.	• Number of Member States using or requesting Agency methodology and guidance for their NKM programmes, initiatives or projects. • Number of Member States participating in the development, sharing or dissemination of Agency methodology and tools.
• The enhanced capability of Agency nuclear information and knowledge resources and services and increased use of Agency methodologies and guidance in Member States for application of advanced technologies for nuclear knowledge management over the life cycle.	• Number of Member States using or requesting Agency methodology and guidance for their NKM programmes, initiatives or projects. • Number of Member States participating in the development, sharing or dissemination of Agency methodology and tools.
• Strengthened nuclear university education in Member States in the areas of nuclear management, nuclear engineering, nuclear science, and applications, and increased levels of Member State activity in nuclear education networking, methodology development and resource sharing.	• Number of Member States using or requesting Agency methodology and guidance for their nuclear education curricula improvement programmes or initiatives. • Number of Member States participating in Agency supported nuclear education networks.

Projects	
Title	**Main Planned Outputs**
1.3.3.001 Implementing knowledge management in nuclear organizations	Publications, reports and proceedings on topical issues and special knowledge management services, tools and products (e.g. Knowledge Management Assist Visit (KMAV), knowledge organization systems and databases.
1.3.3.002 Facilitating sustainable education in nuclear science and technology	One school on NKM and one school on nuclear energy management per year; regional schools, as requested by Member States; publications on nuclear education; annual regional and interregional meetings to facilitate networking for nuclear education; additional e-learning opportunities for Member States.
1.3.3.003 Nuclear knowledge organization systems and technology	Knowledge organization systems and tools for the organization of nuclear data, information and knowledge; platforms for collaboratively managing glossaries, thesauri, taxonomies and knowledge models; publications, reports and proceedings on topical issues; Continuously updated and maintained CLP4NET.

Subprogramme 1.3.4 Nuclear Information

Objectives:

- *To procure and provide printed and electronic information in the area of nuclear science and technology for the use by Member States, the IAEA Secretariat and other users.*
- *To facilitate the sustainable sharing of information generated by Member States on the peaceful uses of nuclear energy.*

Outcomes	Performance Indicators
• On-line access to relevant and reliable information and data on the peaceful uses of nuclear science and technology through INIS.	• Number of records available in the INIS database. • Number of INIS collection web page views.
• Access to relevant, reliable and up to date print and electronic resources, such as documents, monographs and serial publications.	• Annual number of information resources acquired by the IAEA Library (books, articles, documents, databases). • Number of IAEA Library catalogue database and electronic searches. • Number of library service offered.
• Operational INLN.	• Number of members participating in the INLN. • Number of nuclear information requests from INLN members.

Projects	
Title	**Main Planned Outputs**
1.3.4.001 IAEA Library information resources and services	Accessible, relevant and up to date collection of information resources; acquired print and electronic including monographs and serial publications; in both print and electronic format. Operational active INLN. A variety of library services offered; delivered through both traditional and electronic means.
1.3.4.002 INIS collection and services	Accessible, relevant, reliable and up to date repository of INIS bibliographic and full text documents; good cooperation with national INIS centres; high quality thesaurus using relevant standards.

Programme 1.4 Nuclear Science

Nuclear science underpins all nuclear activities, rendering the Agency's role in the provision of nuclear, atomic and molecular data libraries vital for nuclear energy as well as all nuclear applications. Particle accelerators such as synchrotrons and ion beam accelerators have numerous applications in a variety of areas, such as materials science, biotechnology, environment and cultural heritage, enabling economic growth and enhanced scientific capabilities. Facilitating the introduction and promotion of accelerator applications in Member States is therefore valuable. Training and quality assurance services in nuclear instrumentation will continue to support sustainable applications of nuclear techniques.

Advances in nuclear fusion research leading to increased requests from Member States for capacity building will be addressed by strengthening the exchange of information on fusion between the ITER partners and Member States.

Sustainability of research reactors, including their effective utilization and ageing management, is a major challenge. The Programme will provide support to address issues pertaining to research reactor utilization, their maintenance and modernization, the security of fuel supply and spent fuel management, Assistance to Member States embarking on new research reactors projects and promotion of the use of, and access to, research reactors for nuclear capacity building via coalitions, /networks and /collaborative schemes will also continue.

Support to the ICTP, including joint training events, will foster the research capabilities of scientists from developing countries.

Lessons learned from reviews, assessment, evaluations: Nuclear fusion has the potential to be a future source of energy, and the Agency is expected to take the lead role in bringing Member States together in research and dissemination of knowledge. It is important to provide support to Member States in the effective utilization of research reactors, as they are vital for several applications, including capacity building in nuclear sciences and engineering.

Specific criteria for prioritization:

1. Supporting Member States in their capacity building in basic nuclear sciences through international co-operation to address emerging needs in nuclear power and other non-power industries;
2. Fostering international cooperation and information exchange in nuclear fusion research and plasma physics;
3. Provision of nuclear, atomic and molecular data services;
4. Provision of laboratory services, advanced training and materials for human resource development.
5. Supporting Member States in strengthening research reactor management and their effective utilization, and upon request in the transition away from the use of Highly Enriched Uranium (HEU).

Programmatic changes and trends

Subprogramme 1.4.1 Atomic and Nuclear Data will continue in the areas of atomic and nuclear data evaluation and compilation, provision of data services to Member States, organization of CRPs, missions to collaborating centres and support for the exchange of information. The key steps in the production of databases include measurements, evaluation, processing, benchmarking and validation. They are typically supported by a large number of experts, many of whom are from outside the Agency, over a long period of time. The coordinating role of the Agency in this process is therefore also long term.

Subprogramme 1.4.2 Research Reactors will address: (i) regional and interregional collaboration through coalitions, networking and IAEA-designated International Centre based on Research Reactor (ICERR) to improve utilization and enhance access to research reactors; (ii) improvement in operation and maintenance to optimize operational performances; (iii) dissemination of good practices on modernization and refurbishment and ageing management; (iv) national planning and implementation of a first or new research reactor; (v) assistance to enhance utilization of existing research reactors by supporting strategic and business planning and developing market analyses and marketing skills for research reactor goods and services; (vi) assistance with spent fuel management; (vii) use of, and access to, research reactors, including distance learning tools (e.g. the Internet Reactor Laboratory (IRL) for nuclear capacity building in Member States developing nuclear science and technology programmes, including nuclear power programmes; and (viii) supporting Member States upon request to transition away from the use of HEU in research reactors.

Subprogramme 1.4.3 Accelerator Applications and Nuclear Instrumentation addresses the applications of accelerators, which are seen to be growing from the number of installations in the world and the publications emerging. In view of this trend and based on the growing requests for assistance in applications of accelerators, the projects relating to accelerator applications will be strengthened. The project on development of rapid environmental radioactivity monitoring mobile system was replaced with a project to carry out environmental monitoring and mapping missions in Member States using in situ measurements with backpack detectors and unmanned aerial vehicle based systems. In addition, adaptive R&D to further develop the techniques used for these missions is carried out under this new project.

Subprogramme 1.4.4 Nuclear Fusion Research and Technology The creation of a new Nuclear Fusion Coordination Committee and a Nuclear Fusion Unit as part of the Physics Section will improve the coordination of fusion related activities in the Agency. The annual DEMO Workshop Series, the biennial Fusion Energy Conference and additional coordinating activities will strengthen international coordination in nuclear fusion overall.

Subprogramme 1.4.5 Support to Abdus Salam International Centre for Theoretical Physics (ICTP) supports the IAEA–ICTP joint activities, which are found to be effective in reaching out to the professionals, especially from academia, to disseminate knowledge in nuclear sciences, nuclear power and applications. While ICTP activities have, in the past few years, grown beyond basic theoretical physics areas, not all of these are of relevance to the IAEA. Hence, it is seen as important to continue cooperation in areas of mutual relevance and benefit, such as basic nuclear sciences.

Objectives, Outcomes and Performance Indicators by Programme

Programme 1.4 Nuclear Science

Objectives:

— *To support Member States in strengthening capabilities in the development and application of nuclear science as a tool for their technological and economic development.*

— *To assist Member States in enhancing sustainable operation, including effective utilization of research reactors, in implementing new research reactor projects and nuclear capacity building programmes, based on access to research reactors.*

Outcomes	Performance Indicators
• Increased use of Agency mechanisms and guidance for strengthening capabilities in nuclear sciences for technological advancement in Member States.	• Number of scientific events conducted to promote and facilitate capacity in nuclear science capabilities. • Number of participants in the workshops and training courses in nuclear science areas.
• Increased use of Agency mechanisms and guidance for sustainable operation of research reactors and accelerators.	• Number of Member States seeking the Agency's support in the management of research reactors. • Number of Member States seeking the Agency's support in establishment, management and applications of accelerators.

Subprogramme 1.4.1 Atomic and Nuclear Data

Objectives:

— *To support Member States in increasing their capabilities and expertise to ensure the safe and economic adoption of all forms of nuclear technologies by providing rapid access to reliable atomic and nuclear data for energy and non-energy applications.*

Outcomes	Performance Indicators
• Increased use by Member States of sets of atomic and nuclear data recommended by the Agency.	• Number of accesses and retrievals of atomic and nuclear data from the Agency's web site per year.

Projects

Title	Main Planned Outputs
1.4.1.001 Provision of data services	Easy access to data via the Internet by improved searching and visualization tools; documentation and reports to enable efficient data use; new and improved atomic and nuclear databases; coordinated data networks and training courses.
1.4.1.002 Nuclear data developments	Update of the photonuclear data library; evaluated files of the major actinides for the Collaborative International Evaluated Library Organization (CIELO) finalized and documented. An updated version of the Reference Input Parameter Library RIPL-4 for nuclear fission reactions.
1.4.1.003 Atomic and molecular data developments	Introduction of uncertainty data in A Labelled Atomic Data Interface (ALADDIN) and the Atomic and Molecular Bibliographic Data System (AMBDAS) databases containing newly evaluated datasets as they become available for charge transfer processes related to neutral beams in fusion plasma.

Subprogramme 1.4.2 Research Reactors

Objectives:

— *To support Member States in enhancing sustainable operation and effective utilization of existing research reactors.*
— *To support Member States in planning and implementing new research reactor projects, including the development of their national infrastructure.*
— *To support Member States in nuclear capacity building based on the use of and access to research reactors.*

Outcomes	Performance Indicators
• Increased use of Agency mechanisms and guidance in achieving enhanced sustainable operation of existing research reactors and effective implementation of new research reactor projects in Member States.	• Number of research reactors with new or revised strategic and business plans for utilization developed based on the Agency guidance. • Number of research reactor facilities with updated information in the Research Reactor Database (RRDB) and the Research Reactor Ageing Database (RRADB).
• Increased use of and access to research reactors for developing Member State national nuclear programmes and strategies, including for developing human capital.	• Number of Member States engaged as providers in IAEA capacity building initiatives based on research reactors (ICERR, hands-on training courses and IRL). • Number of Member States engaged in IAEA capacity building initiatives based on research reactors (ICERR, hands-on training courses and IRL).

Projects

Title	Main Planned Outputs
1.4.2.001 Enhancement of utilization and applications of research reactors	Support to Member States on research reactor utilization and applications through training workshops, reviews of strategic plans, proficiency tests, CRPs and expert missions; development of publications and e-learning tools; update of the RRDB and web portals.
1.4.2.002 Research reactor infrastructure, planning and capacity building	Support to Member States embarking on new research reactor projects through workshops and expert missions (including Integrated Research Reactor Infrastructure Assessment (IRRIA) missions); delivery of tools for capacity building based on research reactors (ICERR, IRL, hands-on training courses); development of relevant publications.

Title	Main Planned Outputs
1.4.2.003 Addressing research reactor fuel cycle issues	Support to Member States on research reactor fuel cycle issues for sharing experience and knowledge through CRPs, training courses, expert missions and the RRDB; publications; conversion of research reactor fuel and irradiation targets from HEU to LEU and return of HEU fuel to the country of origin, upon request.
1.4.2.004 Research reactor operation and maintenance	Support to Member States on research reactor operation and life management through training workshops, CRPs and expert missions, including Operation and Maintenance Assessment for Research Reactors (OMARR) missions, and through the RRADB and other relevant delivery tools for experience and knowledge sharing; publications.

Subprogramme 1.4.3 Accelerator Applications and Nuclear Instrumentation

Objectives:

— *To support Member States in strengthening their capabilities to adopt and benefit from the applications of particle accelerators, spectrometric techniques and nuclear instrumentation.*

Outcomes	Performance Indicators
• Increased use of Agency mechanisms and guidance in establishing well functioning and optimized nuclear science infrastructure and for developing qualified experts in interested Member States.	• Number of experts attending conferences, meetings, and training supported by the subprogramme. • Number of publications reports resulting from utilization of accelerators, nuclear spectrometry and instrumentation.
• Increased use of Agency mechanisms and guidance by Member States to establish accelerator facilities or use accelerators for research and diverse applications.	• Number of Member States requesting Agency's assistance to set up accelerator facilities or in use of accelerators for research applications.

Projects

Title	Main Planned Outputs
1.4.3.001 Accelerator applications in multiple disciplines	CRPs and technical meetings on a wide variety of accelerator applications in different disciplines, with an emphasis on materials science and energy applications,), and an accelerator database.
1.4.3.002 Facilitating experiments with accelerators	Experiments, training courses and workshops with practical components at the IAEA synchrotron beam line at ELETTRA and the ion beam line at RBI, as well as corresponding CRPs and TMs.
1.4.3.003 Nuclear Instrumentation	Training courses, adaptive R&D, CRPs and TMs on nuclear instrumentation, with an emphasis on applications in environmental monitoring, nuclear spectrometry, accelerator-based R&D; training courses and course materials; XRF Newsletter; and a nuclear instrumentation cooperation.
1.4.3.004 Equipment development for radioactivity monitoring in the environment	Detectors and analysis software and geo-information systems for in situ mapping of radiological contamination; unmanned aerial vehicle based gamma detector system for the survey of medium sized areas.

Subprogramme 1.4.4 Nuclear Fusion Research and Technology

Objectives:

— *To strengthen research programmes in plasma physics, controlled nuclear fusion and nuclear fusion related technology.*

Outcomes	Performance Indicators
• Increased use of Agency mechanisms and guidance in improving infrastructure and fusion research capacity in Member States.	• Number of participants in CRPs, Technical Meetings and joint experiments.
• Improved exchange of information between researchers in plasma physics, nuclear fusion and nuclear fusion related technology.	• Number of participants in the Fusion Energy Conference and DEMO Workshop series.

Projects

Title	Main Planned Outputs
1.4.4.001 Nuclear fusion research and technology	CRPs and Technical Meetings on nuclear fusion and plasma physics; Fusion Energy Conference 2018; DEMO Workshop series; cooperation with ITER.

Subprogramme 1.4.5 Support to Abdus Salam International Centre for Theoretical Physics (ICTP)

Objectives:

— *To support Member States and in particular developing countries in enhancing their scientific capability through training and the exchange of information between scientists in nuclear and related applications.*

Outcomes	Performance Indicators
• Enhanced knowledge skills of scientists achieved through their participation in scientific programmes of ICTP, including through the exchange of information among scientists.	• Number of scientific events that are aimed at benefiting scientists, especially from developing countries. • Number of publications by scientists participating in ICTP scientific events.
• Increased opportunity for scientists from developing countries to carry out doctoral research at an internationally renowned institute through fellowships and, consequently, to produce an enhanced quality of scientific work in their respective home country.	• Number of Sandwich Training Educational Programme (STEP) fellowships funded by the Agency as well as by the ICTP and others.
• Dissemination of knowledge about the work carried out at the Agency in nuclear science areas to young scientists from Member States, especially from developing countries.	• Number of IAEA–ICTP joint workshops conducted. • Number of scientists from Member States who have benefited from the IAEA–ICTP joint courses.

Projects

Title	Main Planned Outputs
1.4.5.001 Support to ICTP	Training courses and material on topics covered by workshops and seminars; scientific publications.

Major Programme 1 — Nuclear Power, Fuel Cycle and Nuclear Science

Summary of Programme Structure and Resources

(excluding Major Capital Investments)

	2018 at 2018 prices		2019 at 2018 prices	
Programme / Subprogramme / Project	**Regular Budget**	**Unfunded**	**Regular Budget**	**Unfunded**
1.0.0.001 Overall management, coordination and common activities	1 614 433	104 297	1 614 425	104 297
1.S Corporate shared services	1 520 533	-	1 513 536	-
	3 134 965	**104 297**	**3 127 961**	**104 297**
1.1.1.001 Engineering support for operating nuclear power plants	1 300 853	-	1 300 847	-
1.1.1.002 Engineering support for expanding and new nuclear power projects	300 392	-	300 391	-
1.1.1 Strengthening Integrated Engineering Support for Nuclear Power Programmes	1 601 245	-	1 601 237	-
1.1.2.001 Support to management systems, leadership and stakeholder involvement	541 151	-	541 148	-
1.1.2.002 Human resource development for nuclear power programmes	466 758	-	466 755	-
1.1.2 Management and Human Resource Development for Nuclear Power	1 007 908	-	1 007 904	-
1.1.3.001 Nuclear power infrastructure development	975 171	971 002	975 167	970 765
1.1.3.002 Support to capacity building for nuclear power infrastructure	1 571 944	175 104	1 571 936	33 582
1.1.3 Infrastructure and Planning for New Nuclear Power Programmes	2 547 115	1 146 106	2 547 103	1 004 346
1.1.4.001 International project on innovative nuclear reactors and fuel cycles	1 120 725	996 090	1 120 720	496 255
1.1.4 International Project on Innovative Nuclear Reactors and Fuel Cycles	1 120 725	996 090	1 120 720	496 255
1.1.5.001 Technology development for water cooled reactors (WCRs)	1 119 310	-	1 119 305	-
1.1.5.002 Technology development for small and medium-sized or modular reactors (SMRs)	251 660	-	251 659	-
1.1.5.003 Advanced technology for fast and gas cooled reactors	624 821	-	624 818	-
1.1.5.004 Non-electric applications of nuclear power	425 355	-	425 353	-
1.1.5 Technology Development for Advanced Reactors and Non-electric Applications	2 421 147	-	2 421 136	-
1.1 Nuclear Power	**8 698 141**	**2 142 196**	**8 698 100**	**1 500 601**
1.2.1.001 Exploration, mining and processing	1 331 262	42 461	1 262 329	10 974
1.2.1 Uranium Resources and Processing	1 331 262	42 461	1 262 329	10 974
1.2.2.001 Nuclear power reactor fuel engineering and performance	808 220	-	856 245	-
1.2.2.002 LEU Bank	-	1 869 829	-	1 279 416
1.2.2 Nuclear Power Reactor Fuel	808 220	1 869 829	856 245	1 279 416
1.2.3.001 Spent fuel storage and transport	917 447	75 543	901 936	150 920
1.2.3.002 Spent fuel recycling	327 706	-	363 675	-
1.2.3 Management of Spent Fuel from Nuclear Power Reactors	1 245 153	75 543	1 265 611	150 920
1.2.4.001 Predisposal management and transport	1 013 709	10 561	1 000 659	-
1.2.4.002 Waste disposal	1 017 510	462 183	979 652	362 568
1.2.4.003 Managing disused sealed radioactive sources (DSRS)	375 554	606 334	369 040	584 253
1.2.4.004 Knowledge sharing and capacity building	360 775	-	418 209	-
1.2.4 Technology for Radioactive Waste Management and Disposal	2 767 549	1 079 078	2 767 560	946 821
1.2.5.001 Decommissioning	658 120	686 331	658 117	498 551
1.2.5.002 Environmental remediation	542 502	38 281	542 500	38 281
1.2.5 Decommissioning and Environmental Remediation	1 200 622	724 612	1 200 617	536 832
1.2 Nuclear Fuel Cycle and Waste Management	**7 352 806**	**3 791 523**	**7 352 362**	**2 924 963**

Major Programme 1 — Nuclear Power, Fuel Cycle and Nuclear Science

Summary of Programme Structure and Resources

(excluding Major Capital Investments)

	2018 at 2018 prices		2019 at 2018 prices	
Programme / Subprogramme / Project	**Regular Budget**	**Unfunded**	**Regular Budget**	**Unfunded**
1.3.1.001 Energy, electricity and nuclear power economics: Status and trends	496 231	-	496 229	-
1.3.1.002 Models and capacity building for energy and nuclear power planning	1 344 588	-	1 344 581	-
1.3.1 Energy Modelling, Data and Capacity Building	1 840 819	-	1 840 810	-
1.3.2.001 Technoeconomic analysis	945 891	320 009	946 045	320 009
1.3.2.002 Topical issues relating to sustainable energy development	609 275	9 090	609 258	132 159
1.3.2 Energy Economy Environment (3E) Analysis	1 555 165	329 099	1 555 303	452 169
1.3.3.001 Implementing knowledge management in nuclear organizations	834 452	-	834 511	-
1.3.3.002 Facilitating sustainable education in nuclear science and technology	627 634	189 444	627 706	189 444
1.3.3.003 Nuclear knowledge Organization systems and technology	823 670	-	823 616	-
1.3.3 Nuclear Knowledge Management (NKM)	2 285 756	189 444	2 285 832	189 444
1.3.4.001 IAEA Library information resources and services	2 682 175	-	2 630 461	-
1.3.4.002 INIS collection and services	1 962 275	-	1 962 266	-
1.3.4 Nuclear Information	4 644 451	-	4 592 727	-
1.3 Capacity Building and Nuclear Knowledge for Sustainable Energy Development	**10 326 191**	**518 543**	**10 274 673**	**641 612**
1.4.1.001 Provision of data services	1 042 484	-	1 042 798	-
1.4.1.002 Nuclear data developments	1 346 892	189 444	1 340 975	189 444
1.4.1.003 Atomic and molecular data developments	548 440	-	554 075	-
1.4.1 Atomic and Nuclear Data	2 937 816	189 444	2 937 848	189 444
1.4.2.001 Enhancement of utilization and applications of research reactors	384 582	10 690	383 455	10 690
1.4.2.002 Research reactor infrastructure, planning, and capacity building	469 704	23 340	470 633	23 340
1.4.2.003 Addressing research reactor fuel cycle issues	464 349	928 821	464 689	822 903
1.4.2.004 Research reactor operation and maintenance	449 707	12 333	449 569	19 320
1.4.2 Research Reactors	1 768 342	975 184	1 768 347	876 254
1.4.3.001 Accelerator applications in multiple disciplines	779 093	161 206	789 111	161 206
1.4.3.002 Facilitating Experiments with Accelerators	420 586	-	420 584	-
1.4.3.003 Nuclear Instrumentation	929 533	79 782	939 717	79 782
1.4.3.004 Equipment development for radioactivity monitoring in the environment	369 272	-	349 105	-
1.4.3 Accelerator Applications and Nuclear Instrumentation	2 498 484	240 988	2 498 517	240 988
1.4.4.001 Nuclear fusion research and technology	843 128	-	843 111	-
1.4.4 Nuclear Fusion Research and Technology	843 128	-	843 111	-
1.4.5.001 Support to the ICTP	2 284 207	-	2 284 197	-
1.4.5 Support to Abdus Salam International Centre for Theoretical Physics (ICTP)	2 284 207	-	2 284 197	-
1.4 Nuclear Science	**10 331 978**	**1 405 616**	**10 332 019**	**1 306 685**
Major Programme 1 - Nuclear Power, Fuel Cycle and Nuclear Science	**39 844 081**	**7 962 176**	**39 785 115**	**6 478 159**

Major Programme 1 — Nuclear Power, Fuel Cycle and Nuclear Science
Activities unfunded in the Regular Budget

Project	Tasks	2018 Unfunded	2019 Unfunded
1.0.0.001 Overall management, coordination and common activities	Programme coordination, MP 1	104 297	104 297
1.1.3.001 Nuclear power infrastructure development	INIR programme development and implementation	971 002	970 765
1.1.3.002 Support to capacity building for nuclear power infrastructure	Support implementation of capacity building in Member States	175 104	33 582
1.1.4.001 International project on innovative nuclear reactors and fuel cycles	Innovations for transition to sustainable nuclear energy systems	996 090	496 255
1.2.1.001 Exploration, mining and processing	Uranium and thorium exploration and resources	42 461	10 974
1.2.2.002 LEU Bank	Project team costs	1 869 829	1 279 416
1.2.3.001 Spent fuel storage and transport	Transport of all kinds of nuclear materials used or generated within the fuel cycle	75 543	150 920
1.2.4.001 Predisposal management and transport	Publications, training and databases	10 561	-
1.2.4.002 Waste disposal	Publications, training and databases	462 183	362 568
1.2.4.003 Managing disused sealed radioactive sources (DSRSs)	Publications and ICSRS	606 334	584 253
1.2.5.001 Decommissioning	Regular activities to support development of the International Decommissioning Network	686 331	498 551
1.2.5.002 Environmental remediation	Regular activities to support development of ENVIRONET	38 281	38 281
1.3.2.001 Technoeconomic analysis	Prepare case studies, economic reports or economic components to specific projects on topical economic and environmental energy, nuclear and sustainable development issues	320 009	320 009
1.3.2.002 Topical issues relating to sustainable energy development	The role of nuclear and other energy technologies in sustainable development strategies and climate change mitigation	9 090	132 159
1.3.3.002 Facilitating sustainable education in nuclear science and technology	Schools in nuclear knowledge management and nuclear energy management schools organized yearly in cooperation with the ICTP or Member States upon request	189 444	189 444
1.4.1.002 Nuclear data developments	Updated version of the Recommended Input Parameter Library RIPL-4	189 444	189 444
1.4.2.001 Enhancement of utilization and applications of research reactors	Publications related to RR utilization and applications, including relevant web portals and databases	10 690	10 690
1.4.2.002 Research reactor infrastructure, planning, and capacity building	Workshops, conferences and symposia	23 340	23 340
1.4.2.003 Addressing research reactor fuel cycle issues	Workshops, conferences, and symposia	928 821	822 903
1.4.2.004 Research reactor operation and maintenance	Risk based ISI / NDE and decision making for long term operation of research reactors	12 333	19 320
1.4.3.001 Accelerator applications in multiple disciplines	Project management and administration	161 206	161 206
1.4.3.003 Nuclear Instrumentation	Nuclear techniques and novel instrumentation for low-Z isotope analysis in food products	79 782	79 782
Grand Total		**7 962 176**	**6 478 159**

Major Programme 2
Nuclear Techniques for Development and Environmental Protection

Introduction

Major Programme 2 supports the peaceful uses of nuclear science and applications. The work of the Programme supports Member State efforts to achieve the Sustainable Development Goals (SDGs). Activities will continue in the Programme's five thematic areas: food and agriculture (SDGs 2 and 15); human health (SDG 3); water resources (SDG 6); environment (SDGs 13 and 14); and radioisotope production and radiation technology (SDG 9). Demand for assistance in all areas is increasing, particularly in efforts to improve food security and safety, reduce environmental degradation and protect human health.

The use of radiation technology to improve health care, food safety, industrial growth and environmental protection is another area of increasing demand, as is establishing response capabilities relating to radiological and non-radiological emergencies.

The Programme's laboratories at IAEA Headquarters and in Monaco and Seibersdorf remain an essential vehicle for programme delivery, and ensuring that the laboratories are able to meet the changing needs of Member States is a priority. Enhancing quality assurance continues to be a priority for the safe and efficient operation of the laboratories. Ongoing efforts to strengthen quality assurance will enable more of the laboratories to achieve and maintain high levels of proficiency demonstrate competence and serve as reference laboratories for Member States.

Partnerships will continue to be an important way to strengthen programmatic activities and to engage with Member States. Key partnerships with United Nations organizations will be strengthened, such as those with the Food and Agriculture Organization of the United Nations (FAO) and the World Health Organization (WHO). Networks of Member State scientific and research institutions will be expanded to extend their global reach. The IAEA Collaborating Centre scheme remains a valuable mechanism for working jointly with Member State institutions. Efforts will be made to expand the scheme and to enhance the effectiveness of existing Collaborating Centre arrangements.

Education and training is fundamental to this Programme, the use of online education platforms and e-learning tools will be emphasized to achieve cost savings and to reach a wider audience. To increase general public awareness of the work and contributions of this Programme, communication strategies and activities will be prioritized and strengthened.

Objectives:	
— *To enhance the capacity of Member States to meet basic human needs and to assess and manage marine and terrestrial environments through the integration of nuclear and isotopic techniques, where they have comparative advantages, into sustainable development programmes.*	
Outcomes	**Performance Indicators**
• Increased use by Member States of nuclear and isotopic techniques for effective improvement in food security, human health, water resources management, management of marine and terrestrial environments, and industrial development.	• Number of Coordinated Research Projects (CRPs) and IAEA Collaborating Centres. • Number of training events in which the Department participates.

Projects

Title	Main Planned Outputs
2.0.0.001 Overall management, coordination and common activities	Annual Report, Nuclear Technology Review; Medium Term Strategy Implementation Report; Mid-Term Progress Report; Programme Performance Report; reports to the General Conference; briefings, meetings of the Standing Advisory Group on Nuclear Applications (SAGNA) and meetings with Member States; maintenance of departmental web sites for outreach purposes.

Title	Main Planned Outputs
2.0.0.002 Management of the Coordinated Research Activities	Completed CRPs; completed research; technical and doctoral documents; contracts and research agreements; technical meetings (research coordination meetings); publications; databases and techniques dissemination; Collaborating Centre agreements.

Programme 2.1 Food and Agriculture

Major global trends that continue to frame agricultural development include rising food demand, persistent food insecurity, malnutrition and the impact of climate change on agricultural production. Increasing demands from Member States for assistance in meeting the challenges in these areas, including support in the achievement of their relevant SDGs, will guide the Food and Agriculture Programme during 2018–2019. The Programme will expand its important work addressing the impacts of climate change on food and agriculture through the use of nuclear technology, and strengthen its biosecurity efforts to address various transboundary animal and plant diseases that potentially pose serious risks to people and their livelihoods.

Lessons learned from reviews, assessment, evaluations: Strengthening cooperation through coordinated and coherent programmes with FAO is critical in order to address the strategic objectives of both organizations.

Specific criteria for prioritization:

1. Provide assistance to achieve sustainable food and agriculture production.
2. Support climate smart agriculture for effective adaptation to, and mitigation of, climate change.
3. Increase food safety and food control.

Programmatic changes and trends

Subprogramme 2.1.1 Sustainable Land and Water Management reflects an increasing concern in Member States with regard to the management of soil and water resources for sustainable food production, particularly in response to the impacts of climate change and variability. Climate smart agriculture requires the development of tools and technologies for improving on-farm and area-wide land and water management practices under both rainfed and irrigated farmlands, and the assessment of their beneficial impacts on food production, soil quality and water quantity, and quality in both cropping and integrated cropping livestock farming systems, including conservation agriculture. The subprogramme will continue to provide assistance to Member States for preparedness to respond to nuclear or radiological emergencies affecting food and agriculture.

Subprogramme 2.1.2 Sustainable Intensification of Livestock Production Systems reflects the continual programmatic shift from traditional technologies towards nuclear and nuclear related/derived immunological and molecular based technologies to: optimally utilize available animal feed resources (while promoting climate smart agriculture); improve the production traits of locally available livestock breeds (i.e. greater yields and better quality milk and meat); develop and transfer early and rapid diagnostic technologies for transboundary animal and zoonotic diseases; and enable Member States to respond to the risks posed by such events earlier and with greater effectiveness. In addition, the use of gamma radiated diagnostic reagents and components and inactivated/killed disease pathogens as vaccine components and the use of stable isotopes to trace and monitor pathways of disease carriers in a non-invasive way will continue to form the basis of activities in this biennium.

Subprogramme 2.1.3 Improvement of Food Safety and Food Control Systems focuses on food quality and safety control procedures and systems based on nuclear and related technologies that will be further developed, validated and transferred. It includes the development, modification and validation of novel and innovative analytical techniques for detecting agrochemical and environmental contaminants in foods and for combating food fraud to assist Member States in ensuring the authenticity, traceability and integrity of the food supply chain. In the area of food irradiation, more emphasis will be given to the development and validation of machine generated irradiation technologies for phytosanitary, sanitary and food quality applications to complement existing technology based on radionuclide sources. In terms of emergency preparedness and response, further improvements of decision making support systems have been developed and will be tested, refined and provided to Member States.

Subprogramme 2.1.4 Sustainable Control of Major Insect Pests is subject to a growing Member State demand for the environmentally friendly, and therefore more sustainable, management of key plant pests that cause major economic losses. The demand for sterile insect technique (SIT) development, transfer and application continues for plant insect pests. Following increasing outbreaks of mosquito borne diseases, there has been an increase in demand of mosquito related SITs.

Subprogramme 2.1.5 Crop Improvement for Intensification of Agricultural Production Systems reflects an increasing concern in Member States with regard to the resilience of agro-biodiversity resources for sustainable food production to the negative impacts of climate change and variability. One of the effective ways for crop production to grow, or to remain stable, in response to the challenges of climate change is through improved varieties. Subprogramme priority will be given to promoting diversification of crop production and broadening crop diversity for climate smart agriculture using mutation breeding, with a special focus on transboundary plant diseases.

Objectives, Outcomes and Performance Indicators by Programme

Programme 2.1 Food and Agriculture	
Objectives:	
— *To contribute to the sustainable intensification of agricultural production and the improvement of global food security through capacity building and technology transfer to Member States.* — *To increase the resilience of livelihoods to threats and crises that impact agriculture, including climate change, biothreats, food safety risks, and nuclear or radiological emergencies.* — *To improve efficient agricultural and food systems for sustainable management and conservation of natural resources, and to enhance the conservation and application of plant and animal biodiversity.*	
Outcomes	**Performance Indicators**
• Increased food security and sustainable use of natural resources through the application of nuclear and related techniques, technology transfer and capacity building.	• Number of Member States improving their food security and sustainable use of natural resources, with notable social, economic or environmental impacts.
• Improved capacity of Member States to use nuclear techniques for sustainable intensification of agricultural production.	• Number of national agricultural research institutes using Agency recommended techniques, guidelines and products in their agricultural research and development.
Subprogramme 2.1.1 Sustainable Land and Water Management	
Objectives:	
— *To support Member States to develop and adapt nuclear techniques in land and water management practices for agricultural productivity and sustainability.* — *To build the capacity of Member States to use nuclear and isotopic techniques to assess impacts of land and water management practices, climate change on soil and water resources for sustainable food production, and to improve the preparedness to respond to nuclear or radiological emergencies affecting food and agriculture.*	
• Enhanced Member State capability to adapt to, and mitigate, the impact of climate change and related changes in land use activities, land degradation, soil erosion and water scarcity, and nuclear or radiological emergencies on food and biomass production.	• Number of innovative land and water management packages developed and adapted for: improving water use efficiency, soil quality, soil resilience and crop adaptation to climate change and strengthening preparedness for nuclear or radiological emergencies affecting food and agriculture.
• Strengthened Member State capability to use isotopic and nuclear techniques to assess the impact of on-farm and area-wide land and water management practices and climate change on soil and water resources for sustainable food production, and nuclear or radiological emergencies affecting food and agriculture.	• Number of Member States reporting on the use of isotopic, nuclear and related conventional techniques to assess the impacts of on-farm and area-wide land and water management practices and climate change on soil and water conservation, and nuclear or radiological emergencies affecting food and agriculture.

Projects

Title	Main Planned Outputs
2.1.1.001 Land management for climate smart agriculture	Data on the impact of climate change on soil and land productivity, and effectiveness of climate smart soil management practices; protocols and guidelines; data collection, management and visualization tools for crisis management; publications; training.
2.1.1.002 Water management for resource saving agriculture	Protocols, guidelines and sensor technology to improve crop water productivity; sustainable use of salt affected lands for crop production; enhanced nutrient and water resources for crop livestock production; minimized agricultural pollution; effective responses to drought and flooding emergencies in agriculture.

Subprogramme 2.1.2 Sustainable Intensification of Livestock Production Systems

Objectives:

— *To develop and strengthen the capacity of Member States to enhance livestock nutrition and reproduction as well as breeding systems sustainably.*

— *To support Member States in the control of animal and zoonotic disease risks, including those with a biothreat potential, by developing, transferring and applying nuclear, atomic and related techniques, while promoting climate smart agriculture.*

Outcomes	Performance Indicators
• Increased use of Agency recommended and locally available feed resources while promoting environmental conservation.	• Number of Member States using Agency recommended standards and techniques in feeding livestock.
• Enhanced use of reproduction and breeding strategies and practices that improve productivity in smallholder production systems.	• Number of Member States implementing livestock breeding services and introducing animal genetic characterization and breeding strategies to improve reproduction practices.
• Enhanced biosecurity through an increased ability to diagnose and control transboundary animal and zoonotic diseases, including those with a biothreat potential.	• Number of Member States implementing animal and zoonotic disease diagnostic technologies to ensure early diagnosis and control actions (vaccination or disease elimination).

Projects

Title	Main Planned Outputs
2.1.2.001 Improving animal production and breeding	Publications; guidelines and standard operating procedures; training courses and workshops; database for recording production data.
2.1.2.002 Decreasing transboundary animal and zoonotic disease threats	Development and transfer of atomic, nuclear and nuclear related technologies for the early and rapid diagnoses and control of transboundary animal and zoonotic diseases, including those with a biothreat potential.

Subprogramme 2.1.3 Improvement of Food Safety and Food Control Systems

Objectives:

— *To strengthen the capacity of Member States to improve food safety and food control systems, as well as environmental protection, including preparedness and response to nuclear or radiological emergencies.*

— *To support Member States in enhancing international food trade through the use of nuclear and related techniques for food safety, sanitary and phytosanitary purposes.*

Outcomes	Performance Indicators
• Increased and expanded application of established and novel food irradiation technologies for food quality and sanitary and phytosanitary purposes.	• Number of Member States that allow the export and import of irradiated food. • Number of facilities treating food.
• Use of integrated food forensic, traceability and contaminant control techniques to improve food safety and quality and to strengthen domestic and international trade; improved agricultural practices of the use of agrochemicals to optimize food production and environmental sustainability.	• Number of laboratories developing and/or applying food control techniques and methods. • Number of validated analytical methods for food safety and integrity transferred to, or implemented in, Member States.
• Enhanced use of harmonized procedures and international standards for preparedness and response to nuclear or radiological emergencies; development and dissemination of guidelines and protocols for agricultural countermeasures and remediation strategies for agricultural production, land and water.	• Number of harmonized administrative arrangements, procedures and international standards developed and disseminated. • Number of guidelines on agricultural countermeasures and remediation strategies, including monitoring and sampling protocols, developed and disseminated.

Projects

Title	Main Planned Outputs
2.1.3.001 Food irradiation applications using novel radiation technologies	International standards, guidelines, protocols and approaches for food quality; sanitary and phytosanitary irradiation using electron beams, X rays and relevant radionuclide source technology; developing new radiation technologies and supporting Member States in the adoption and use of food irradiation.
2.1.3.002 Traceability for food safety and quality to enhance international trade	Validated methods for food authentication, traceability and contaminant control to improve food safety and quality and facilitate trade; laboratory scientists and technicians trained; procedures supporting food control programmes in Member State laboratories; laboratory networks established and/or consolidated.
2.1.3.003 Preparation and response to radiological emergencies: Food and agriculture	Revised and up to date Joint Radiation Emergency Management Plan of the International Organizations (JPLAN); new cooperative arrangements between FAO and IAEA on the response to nuclear or radiological emergencies; a network of key institutions, including international organizations.

Subprogramme 2.1.4 Sustainable Control of Major Insect Pests

Objectives:

- *To increase the capacity of Member States in the area-wide suppression, containment or eradication of key pests which threaten crops, livestock and humans, by developing and integrating SIT with other methods.*
- *To help Member States reduce losses and insecticide use, to facilitate international agricultural trade, and to reduce the risk of establishment and spread of exotic insect pests through the development, validation and transfer of SITs and other biological technologies.*
- *To help Member States control mosquito populations that spread diseases through the development, validation and transfer of SITs.*

Outcomes	Performance Indicators
• Increased awareness, capacity and use by Member States of improved SITs and related technologies, and decision support systems to create optimal insect pest control strategies.	• Number of Member States receiving training, support and improved technologies, feasibility and decision support studies, guidelines, manuals and standards.

Projects	
Title	**Main Planned Outputs**
2.1.4.001 SIT and related technologies to manage major insect plant pests	Improved methods and strains; feasibility assessments and implementation of area-wide integrated programmes; design of insect mass-rearing facilities; post-harvest treatments; guidelines; databases and models; shipment of strains and materials; training.
2.1.4.002 Management of livestock insect pests for sustainable agriculture	Improved procedures to mass-rear, separate by sex, sterilize, release and monitor; capacity building; provision of materials, feasibility assessments and facility designs; strategy and policy advice; harmonized approaches among key international partners.
2.1.4.003 Development of SIT for the control of disease transmitting mosquitoes	Methodologies for medium scale rearing and sterilization of *Aedes albopictus* and *aegypti*, and *Anopheles arabiensis*; sexing systems and strains; male mosquito behaviour assessments; release systems; guidelines, manuals, facility designs and training.

Subprogramme 2.1.5 Crop Improvement for Intensification of Agricultural Production Systems	
Objectives:	
— *To enhance the capacity of Member States to use nuclear and nuclear related technologies for crop improvement.* — *To support Member States to address major constraints of crop production through mutation breeding techniques.*	
Outcomes	**Performance Indicators**
• Improved capacity of Member States to use mutation breeding techniques and efficiency enhancing technologies for developing improved crop varieties.	• Number of Member States supported in the use of nuclear and nuclear related technologies in crop improvement.
• Number of technology packages developed and transferred to Member States to address major agricultural constraints.	• Number of Member States applying developed technology packages.
Projects	
Title	**Main Planned Outputs**
2.1.5.001 Mutation induction for better adaptation to climate change	Protocols and guidelines; database; training; mutant lines and varieties developed.
2.1.5.002 Integrated techniques for mutation breeding and biodiversity	Protocols and guidelines; database; training; enhanced crop biodiversity (mutant/advanced lines) as breeding resources.

Programme 2.2 Human Health

Nuclear and related techniques contribute to sustainable development in human health in particular by supporting Member States in achieving SDG 3. They are used in the prevention, diagnosis and treatment of a large number of health issues or to complement non-nuclear techniques. The Programme includes medical imaging and radiation treatment, the use of stable isotopes to combat malnutrition in all its forms, and quality management to ensure safe and effective use of these modalities. In pursuing these activities, the Programme supports the review and assessment of new technologies, the implementation and strengthening of medical imaging and treatment modalities, and the establishment of analytical techniques, and provides guidance on the practical implementation in Member States.

In the area of nutrition, the planned activities reflect an increased emphasis on effective evidence based nutrition programming in early life nutrition and the prevention of nutrition related non-communicable diseases (NCDs) later in life in the context of multiple burdens of malnutrition. Activities on health effects of the environment will be expanded, with a focus on food-borne chemical contaminants and environmental enteric dysfunction. In radiation medicine, the focus will be on the development of strategies to support Member States in the use of appropriate technology and to enhance the quality of diagnosis and treatment.

The Programme will also enhance capacity building by strengthening the education of professionals to improve clinical practice and nutritional programmes in Member States. Partnership and cooperation with WHO, other United Nations and international agencies and professional bodies will lead to enhanced synergies, optimized resources, and harmonized best practice and quality guidelines. The beneficiaries of the Programme are patients, health professionals, hospitals, nutritionists, laboratories and research centres in Member States.

Lessons learned from reviews, assessment, evaluations: Investment in new technology is not always accompanied by adequate investment in human resource development in Member States.

- Additional efforts should be deployed to strengthen the central role for capacity building, especially during the transition to new technology.
- The implementation of Agency guidelines to enhance quality assurance in Member States is challenging due to limited resources that are dedicated to quality improvement. There is a need to increase the Agency's efforts to raise awareness on the need to promote quality assurance in Member States.

Specific criteria for prioritization:

1. Activities that have the greatest impact on effectiveness of diagnosis and treatment of patients, while ensuring safety of patients, staff and public.
2. Activities designed to support the implementation and sustainability of existing technologies in Member States.
3. Activities that support Member States in the safe transitioning to new and proven modalities, including those relating to capacity building of professionals.
4. Emerging nuclear technologies that reflect priorities identified by Member States.

Programmatic changes and trends

Subprogramme 2.2.1 Nutrition for Improved Human Health will continue to focus on early life nutrition and the double burden of malnutrition comprising, which is the coexistence of both undernutrition and overweight and obesity. New areas in the field of health effects of the environment include the assessment of nutrient absorption in gut dysfunctions and the role of endocrine disruptors such as persistent organic pollutants in early child growth and obesity. The subprogramme will expand the public health perspective to include clinical applications in the area of nutritional care during diagnosed cancer. Expansion of partnerships, the increased focus on quality assurance of measurements made both in the field and in the laboratory, as well as capacity building will remain important.

Subprogramme 2.2.2 Nuclear Medicine and Diagnostic Imaging, in response to the steadily increasing requests to support applications of nuclear medicine and diagnostic imaging techniques, will continue to focus on the use of radionuclide therapies and integrated diagnostic medical imaging, including radiological techniques (e.g. computed tomography (CT) and magnetic resonance imaging (MRI)) and nuclear medicine (e.g. single photon emission computed tomography (SPECT), SPECT/CT, positron emission tomography (PET) and PET/CT) to tackle NCDs, in particular cardiovascular diseases and cancer, which are also a focus of WHO. Applications of nuclear medicine and radiology will be addressed from a clinical and research standpoint. Professional education and training will continue to use different outreach mechanisms, including guidance documents and web based e-learning resources, conferences, specific training, and, from a research point of view, new CRPs focusing on areas of interest and filling the existing gaps in clinical practice in Member States.

Subprogramme 2.2.3 Radiation Oncology and Cancer Treatment will pursue modern mechanisms for the delivery of training, including e-learning strategies, in low resource environments and in line with the overall objectives of the Human Health Programme. Areas include novel techniques (e.g. intensity modulated radiation therapy (IMRT), image guided radiation therapy (IGRT), stereotactic radiotherapy (SRT), intraoperative radiotherapy (IORT), tomotherapy, particle therapy, and applied radiation biology in particular clinical applications of biodosimetry) and the exploration of their feasibility for effective use in developing countries. The subprogramme will increase the use of web based educational resources.

Subprogramme 2.2.4 Dosimetry and Medical Physics for Imaging and Therapy will focus on the development of new quality assurance and quality control guidance in medical physics and update of existing guidelines. Support for education and training of medical physicists in Member States will continue, using e-learning material and clinical training guides. Dosimetry laboratory services for Member States will be enhanced.

Support will be provided for CRPs to develop dosimetry protocols and quality assurance and quality control guidelines. The monitoring of new technology and assessment of its efficacy will be conducted through consultancies with professional societies and international organizations. Guidelines for a safe and effective transition to new

technology in radiation medicine will be developed.

Medical physics training packages for nuclear or radiological emergencies will be maintained through an e-learning platform and support will be provided for training the trainers in Member States.

Objectives, Outcomes and Performance Indicators by Programme

Programme 2.2 Human Health	
Objectives:	
— *To enhance Member State capability to address needs relating to the prevention, diagnosis and treatment of health problems through the development and application of nuclear and related techniques within a quality assurance framework.*	
Outcomes	**Performance Indicators**
• Enhanced use of nuclear techniques to develop more effective nutrition programmes.	• Number of Member States sharing results of studies using nuclear and related techniques with national public health stakeholders.
• Enhanced competencies of health care professionals working in radiation medicine in Member States.	• Number of professionals trained in the Programme through human health related activities.

Subprogramme 2.2.1 Nutrition for Improved Human Health	
Objectives:	
— *To enhance Member State capability in improving nutrition for better human health.*	
Outcomes	**Performance Indicators**
• Increased capability to conduct studies using nuclear techniques to develop informed nutrition policies and programmes.	• Number of institutions in Member States applying the deuterium dilution technique according to quality standards as determined in inter-laboratory studies.
• Enhanced use of nuclear techniques to develop more effective nutrition programmes.	• Number of Member States sharing results of studies using nuclear and related techniques with national public health stakeholders.
Projects	
Title	**Main Planned Outputs**
2.2.1.001 Health effects of nutrition and the environment	Guidelines and on-line education resources; publications; standard quality control procedures; strong partnerships.

Subprogramme 2.2.2 Nuclear Medicine and Diagnostic Imaging	
Objectives:	
— *To support Member States in improving the management of health conditions through effective implementation of nuclear medicine and diagnostic imaging techniques with a special focus on NCDs.*	
Outcomes	**Performance Indicators**
• Improved Member State capability to manage major health conditions such as cardiovascular diseases and cancer by using nuclear medicine and diagnostic imaging techniques.	• Number of institutions in Member States applying nuclear medicine and diagnostic imaging procedures that were involved in IAEA activities and training in nuclear medicine and diagnostic imaging.
• Increased competencies of professionals in Member States to provide advanced nuclear medicine and diagnostic imaging procedures.	• Number of professionals trained through IAEA activities in nuclear medicine and diagnostic imaging.

Projects

Title	Main Planned Outputs
2.2.2.001 Nuclear medicine and radiology techniques in health conditions	Publications, guidance, guidelines, meeting reports and results of CRPs.
2.2.2.002 Clinical data management and education in nuclear techniques in health	Improved and harmonized research activities; updates to the Human Health Campus, update Nuclear Medicine Database (NUMDAB); interactive e-learning materials, educational materials, webinars and a harmonized nuclear medicine training curriculum; promotion of Quality Management Audits in Nuclear Medicine Practices (Second Edition), IAEA Human Health Series No. 33.

Subprogramme 2.2.3 Radiation Oncology and Cancer Treatment

Objectives:

— *To enhance Member State capability to establish sound policies for radiotherapy and cancer treatment and other applications of radiation in human health, and to ensure the effective, efficient and safe utilization of current and future advanced radiotherapy technologies.*

Outcomes	Performance Indicators
• Improved management of cancer patients in Member States through implementation of evidence based approaches and Agency guidelines.	• Number of Member States participating in Agency radiotherapy and radiobiology activities.

Projects

Title	Main Planned Outputs
2.2.3.001 Clinical radiation oncology	Publications; databases; teaching materials and e-learning resources.
2.2.3.002 Biological effects of radiation	Training materials; the provision of expertise to implement clinical trials utilizing novel strategies, including clinical biodosimetry and research progress in radiation sterilization in tissue banking and tissue engineering.

Subprogramme 2.2.4 Dosimetry and Medical Physics for Imaging and Therapy

Objectives:

— *To enhance the capability to implement radiation imaging and treatment modalities safely and effectively through optimized dosimetry and medical physics practice.*

Outcomes	Performance Indicators
• Enhanced quality assurance and dosimetry in national calibration laboratories and hospitals in Member States through the use of Agency guidelines and dosimetry services.	• Number of Member States that use Agency dosimetry services and implement Agency guidelines on dosimetry and quality assurance.

Projects

Title	Main Planned Outputs
2.2.4.001 Calibration and auditing services	Results of dosimetry postal audit services; results of calibration of national dosimetry standards; results of comparisons; resolution of discrepancies of beam calibrations in Member States; updated databases.
2.2.4.002 Developments in radiation dosimetry	Publications; training materials on radiation dosimetry.
2.2.4.003 Clinical medical radiation physics	Publications on quality assurance guidelines; codes of practice; education materials for medical physicists working in medical radiation imaging and treatment; methodologies on auditing procedures in radiation medicine.

Programme 2.3 Water Resources

The availability of fresh water as a key factor for human well-being is recognized in SDG 6 "Ensure availability and sustainable management of water and sanitation for all". With this specific SDG on water, a sustained focus on water resource assessment and management is expected in the coming years. Groundwater is expected to play a key role in ensuring food and water security in the near future. Estimates of the total groundwater availability, its storage, flow patterns and the factors controlling freshwater quality are not always well understood. Increased use of previously untapped resources has resulted in environmental degradation and declining water levels. Increasing energy demand also requires greater availability of water and ability of governments to allocate water rationally between different economic activities. Additional uncertainties relate to the impact of climate change and land use on water resources.

Comprehensive water resources assessment and management require multidisciplinary approaches that need to be supported strongly by scientific data on the occurrence, distribution and flow of water resources. An absence of national water assessments (including groundwater) limits a Member State's ability to meet the demands for water supply and better address water security. Isotope hydrology techniques — based upon the use of environmental radioactive and stable isotopes in water — help to rapidly and cost effectively assess and manage water resources. Programme priorities remain in supporting Member States to increase capacity and self-reliance in conducting comprehensive water resources assessments incorporating isotope tools effectively.

Lessons learned from reviews, assessment, evaluations: A key lesson learned has been the importance of formulating hydrological studies and water resources assessment projects based on the clearly identified priorities of Member States on water issues, specific gaps in hydrological information, and the existing institutional and legal framework. Additionally, a preliminary assessment of the role of isotope and related techniques in addressing specific problems needs to be completed to ensure that the proposed work plan has an advantage compared to approaches based on more conventional techniques. The number of projects relating to the use of artificial radioisotopes, geothermal reservoirs, salinity issues and dam leakage continues to be reduced. Recent analytical developments allowed a major expansion in the use of stable isotopes, radioisotopes and noble gases in numerous Member States, leading to increasing self-reliance in obtaining analytical results. However, support by the Agency to ensure and maintain the required quality remain important.

Specific criteria for prioritization:

1. Agency services of interest to Member States, as expressed in several General Conference resolutions.
2. Existence of specific information on the institutional and legal framework and gaps in hydrological information at national and regional levels.
3. Comparative advantages of isotope and nuclear techniques compared to non-nuclear alternatives for the proposed application.
4. Member States' prioritization of their development needs and efforts relating to water resources.

Programmatic changes and trends

Subprogramme 2.3.1 Isotope Data Networks for Hydrology and Climate Studies will address one of the priorities of the Programme, which is to provide access to the unique IAEA global isotope databases of the Global Network of Isotopes in Precipitation (GNIP) and the Global Network of Isotopes in Rivers (GNIR). The Agency is compiling and verifying isotope data from numerous research groups and isotope hydrology laboratories in Member States for hydrological and climatological studies. The demand for the collected isotope data is growing fast, with numerous requests to GNIP and GNIR. The operation of global monitoring programmes on precipitation and rivers remains a key activity of the Programme. On the other hand, the fast development of laser absorption spectroscopy has led to the replacement of mass spectrometric methods by these simpler methods. The current priority of the IAEA Isotope Hydrology Laboratory (IHL) is to ensure self-reliance and adequate quality in stable water isotope analysis in Member States through the provision of regular training on the new analytical tools, quality assurance and quality control support, and the organization of proficiency tests.

Subprogramme 2.3.2 Isotope Based Assessment and Management of Water Resources will focus on the need of counterparts in Member States to conduct comprehensive water resources assessments at the national and regional level, based on the experience learned through the implementation of the IAEA Water Availability Enhancement Project (IWAVE). The Agency has a unique role in helping Member States to conduct assessments through the use of isotope techniques through technical cooperation projects as well as collaborative projects with other United Nations organizations. Definitions of projects and work plans need to be based on the identified priorities of Member States on water issues, specific gaps in hydrological information as well as the existing institutional and legal framework. Projects on dam safety, geothermal studies, use of artificial tracers and coastal aquifer salinity problems will continue to be phased out.

Subprogramme 2.3.3 Radioisotope Applications for Hydrology aims to facilitate access and to expand the use of environmental radionuclides and dissolved noble gases and their isotopes for water resources management. The planned activities in this cycle are expected to consolidate the ongoing work promoting the use of these tracers as a routine tool in technical cooperation projects, the broader use of both long and short lived radionuclides for groundwater age dating and recharge assessments, as well as tracing sources and the dynamics of pollution. Several of these activities aim at developing and testing simpler field and laboratory methodologies to facilitate the routine application of these new approaches, combined with other hydrological and geochemical tools in Member States.

Objectives, Outcomes and Performance Indicators by Programme

Programme 2.3 Water Resources	
Objectives:	
— *To enable Member States to use isotope hydrology for the assessment and management of their water resources, including the characterization of climate change impacts on water availability.*	
Outcomes	**Performance Indicators**
• Sustainable water resources management and related legal and policy development in Member States based on a scientifically sound evaluation of water resources availability and quality.	• Number of Member States using isotope hydrology methodologies and global isotope datasets for water resources assessment and management, including adaptation to climate change.
• Trained human resources and available infrastructure for the integration and routine use of isotope hydrology methods in water resources assessments.	• Number of Member States with implemented/initiated water resources assessment programmes using isotope techniques. • Number of laboratories in Member States with the ability to produce good quality stable isotope and tritium analyses of water samples.

Subprogramme 2.3.1 Isotope Data Networks for Hydrology and Climate Studies	
Objectives:	
— *To provide Member States access to global isotope data and mapping products, and to disseminate isotope hydrology information through publications and training.*	
Outcomes	**Performance Indicators**
• Increased ability of Member State institutions to utilize isotope techniques in water resources assessment and management.	• Number of Member States having implemented/initiated water resources assessment programmes using isotope techniques. • Number of Member States equipped with analytical equipment for isotope analysis for hydrological and climatic studies.
Projects	
Title	**Main Planned Outputs**
2.3.1.001 IAEA isotope data networks for precipitation, rivers and groundwater	Updates of the Water Isotope System for Data Analysis, Visualization, and Electronic Retrieval (WISER) databases and new spatial analysis/mapping products.
2.3.1.002 Synthesis and dissemination of global isotope data and related information	Mapping products, newsletters, atlases, training programmes/e-learning products with the UNESCO-IHE Institute for Water Education (UNESCO-IHE).

Subprogramme 2.3.2 Isotope Based Assessment and Management of Water Resources	
Objectives:	
— *To enable Member States to use isotope techniques for local scale to national scale water resources assessment and surface or groundwater management.*	
Outcomes	**Performance Indicators**
• Increased use of isotope hydrology by Member States as part of their water resources assessment efforts.	• Number of total Member States regularly using isotope hydrology methods as part of their water resources assessment and management efforts.
Projects	
Title	**Main Planned Outputs**
2.3.2.001 Comprehensive assessment of resources	National assessment reports for participating Member States.
2.3.2.002 Management strategies for groundwater and surface water resources	Transboundary assessment reports.

Subprogramme 2.3.3 Radioisotope Applications for Hydrology	
Objectives:	
— *To enable Member States to use radioisotopes of carbon and noble gases for river and groundwater management.* — *To strengthen the capacity of Member States in the analysis of environmental tritium in water samples.*	
Outcomes	**Performance Indicators**
• Improved assessment and management of river and groundwater systems using radioisotopes.	• Number of Member States where radionuclides and noble gas isotopes have been used with Agency assistance for the assessment of water resources.
• Improved capacity of Member States in the analysis of environmental tritium in water samples.	• Number of isotope hydrology laboratories able to produce high quality tritium isotope data in their own laboratories.
Projects	
Title	**Main Planned Outputs**
2.3.3.001 Characterization of fossil groundwater using long lived radionuclides	Expanded network of Member State laboratories providing isotope analysis and measurement protocols for isotope sampling and analysis.
2.3.3.002 Noble gas isotopes for groundwater recharge and pollution studies	Improved sampling methods for helium isotope analysis; and use of helium and other noble gases for water resource assessments.

Programme 2.4 Environment

Protecting the natural environment remains one of the three fundamental pillars of sustainable development, and ensuring effectiveness and efficiency in environmental management is fundamental to realizing the SDGs, especially SDG 13 on biodiversity and SDG 14 on the oceans. Major threats to the environment, such as over-exploitation, habitat loss, invasive species, pollution and climate change, continue to reduce biodiversity and the quality of life while affecting the provision of key ecosystem services critical to further development and poverty reduction.

Nuclear and isotopic techniques have an important role to play in the management of the environment and in the development of mitigation and adaptation strategies. The objective of the Programme is to enhance the capacity of Member States to use nuclear and isotopic techniques to understand marine, terrestrial and atmospheric environmental processes and dynamics, and to identify and address environmental problems caused by radioactive and non-radioactive pollutants and climate change.

The activities of the Programme support international trade, ecological sustainability, effective environmental risk assessment and remediation of polluted environments, with corresponding improvements in the analytical

capabilities of the Member State laboratories involved in Agency activities at national, regional and interregional levels. The Programme further enhances capacity building in Member States dealing with elevated levels of radioactive, or other environmental contaminants, for sustainable management of terrestrial and marine environments and their natural resources. The Programme also provides scientific information to other international organizations.

Lessons learned from reviews, assessment, evaluations: The subprogrammes will be enhanced by strengthening their activities. This includes:

- Strengthening the capacity of Member States to study, monitor and address: environmental radioactivity, climate change and ocean acidification, coastal pollution and seafood safety, and habitats threatened by agriculture, forestry and mining.
- Integrating soil, freshwater, biota, coastal, marine and atmospheric studies to improve understanding of environmental processes and anthropogenic impacts, paying particular attention to multiple stresses in the environment.
- Strengthening the capacity of Member States to respond to nuclear or radiological emergencies.
- Facilitating the provision of reference products.
- Enhancing collaboration with key partners.
- Improving communication and outreach activities.

These activities will be assisted by the implementation and expansion of a quality system, providing a model for other Member State laboratories.

Specific criteria for prioritization:

1. Activities that make a significant contribution in assisting Member States to reach their SDGs.
2. Activities that assist Member State laboratories through networking and development of guidelines, and enhance their environmental awareness using nuclear techniques.
3. Activities that support lowering technical barriers to trade and support the competitiveness of least developed and developing countries. Efforts are made to focus on increasing the efficiency of programme delivery, in part by working more closely with Member State institutions via networks (e.g. the network of Analytical Laboratories for the Measurement of Environmental Radioactivity (ALMERA)) as well as through IAEA Collaborating Centres and other partnerships at national, regional and international levels. The quality of services will be emphasized and ensured through, for example, the development of guidelines, standards, and the production of reference materials and the organization of proficiency tests.

Programmatic changes and trends

Subprogramme 2.4.1 IAEA Reference Products for Science and Trade will focus on reference materials and proficiency tests, which remain the core activities of the subprogramme together with support to the ALMERA laboratory network. The establishment of an internal laboratory quality system at the IAEA enhances the reliability of the IAEA as a provider of high quality products for quality assurance and quality control in the field of environmental related nuclear techniques.

Subprogramme 2.4.2 Nuclear Techniques to Understand Climate and Environmental Changes will focus on nuclear and isotopic techniques applied at the IAEA Environment Laboratories of the Department of Nuclear Sciences and Applications (NAEL) to better understand current and future ocean acidification impacts on coastal and marine ecosystems, their resources and their socioeconomic values. The Agency is recognized by Member States and partner organizations as a key player in global ocean acidification activities. These activities include field and laboratory based investigations, modelling and international coordination activities through the Ocean Acidification International Coordination Centre (OA-ICC), operated by NAEL. The integration of marine, terrestrial and atmospheric activities using nuclear and isotopic techniques to study climate change will continue at NAEL. For example, atmospheric carbon dioxide studies are being developed to gain a more robust understanding of the interconnection and complexities of the carbon and hydrologic cycles.

Subprogramme 2.4.3 Nuclear Techniques to Monitor and Assess Pollution provides Member States the nuclear and isotopic tools to measure and assess radioactive and non-radioactive pollution in the environment. Efforts include fostering international collaborations and implementation of monitoring and assessment programmes and standardized data repositories. The subprogramme also addresses pollution trends and the behaviour and effects of radionuclides in the marine environment. Support to environmental database development and modelling are also strengthened in this subprogramme. In particular, IAEA's Internet based Marine Information System (MARiS) continues to be expanded and networked to serve a broader stakeholder community and to provide instant access to

comprehensive data and information resources on key environmental pollutants. Nuclear and associated techniques are also applied to better understand past climate phenomena and climate variability as reconstructed from environmental archives on corals and sediments.

Subprogramme 2.4.4 Applying Analytical Techniques to Protect Biodiversity and Ecosystem Services will focus on contaminants, such as radionuclides, trace elements, persistent organic pollutants and biotoxins, which represent a major threat to human health, biodiversity and to the productive functioning of marine and terrestrial ecosystems. This subprogramme develops nuclear and isotopic techniques to provide Member States with powerful tools to assess contaminant levels and to study the sources, behaviour and impact on marine and terrestrial ecosystem services. The subprogramme focuses on knowledge development, strengthening analytical capacities of Member States and transferring know-how on environmental assessments and on contaminated sites remediation, through multilateral collaboration.

Objectives, Outcomes and Performance Indicators by Programme

Programme 2.4 Environment

Objectives:

— *To support Member States in identifying environmental problems caused by radioactive and non-radioactive pollutants and climate change, using nuclear, isotopic and related techniques, and to propose mitigation and adaptation strategies and tools.*

— *To enhance the capability to develop strategies for the sustainable management of terrestrial, marine and atmospheric environments and their natural resources in order to address effectively and efficiently their environment related development priorities.*

Outcomes	Performance Indicators
• Enhanced use of nuclear, isotopic and related techniques for identifying environmental problems caused by radioactive and non-radioactive pollutants, climate change and the loss of natural habitat, and to develop mitigation and adaptation strategies and tools.	• Number of Member States assisted in order to improve the use of nuclear and isotopic techniques to identify environmental impacts caused by pollution, climate change or loss of habitat. • Number of new certified reference materials produced and analytical methodologies published and/or validated.
• Enhanced capability to develop strategies for the sustainable management of terrestrial, marine and atmospheric environments and their natural resources in order to address effectively and efficiently their environment related development priorities.	• Number of Member States participating in research, monitoring or training activities that will enhance their capability to develop strategies to protect the environment and sustainably utilize natural resources.

Subprogramme 2.4.1 IAEA Reference Products for Science and Trade

Objectives:

— *To enhance the reliability and comparability of measurement results obtained by nuclear analytical techniques in Member State laboratories.*

Outcomes	Performance Indicators
• Enhanced capability of Member State laboratories to carry out sampling and measurements with the assistance of reference materials provided by the Agency.	• Number of laboratories in the ALMERA network. • Number of IAEA reference materials available on the web page of the Reference Products for Science and Trade subprogramme.

Projects

Title	Main Planned Outputs
2.4.1.001 Provision of reference products and laboratory performance support	Production and distribution of reference materials; conduction of proficiency tests; consolidated Agency web site for customer interaction; harmonization of Agency reference materials production and certification process.

Title	Main Planned Outputs
2.4.1.002 Quality management and supporting network activities	Establishment of quality management at IAEA laboratories with accreditation of analytical procedures; advice to Member State laboratories with regard to analytical performance; operational ALMERA network; personnel training; recommended analytical procedures.

Subprogramme 2.4.2 Nuclear Techniques to Understand Climate and Environmental Changes

Objectives:

— *To enhance the capability to develop and apply nuclear, isotopic and related techniques to assess climate and environmental changes and their effects on environmental contamination by radioactive and non-radioactive pollutants.*

— *To enhance the capability to develop and apply nuclear and related techniques for identifying, monitoring and mitigating impacts of climate and environmental changes on ecosystem services.*

Outcomes	Performance Indicators
• Enhanced use of nuclear, isotopic and related techniques for understanding, modelling and assessing climate and environmental changes and for risk based assessment of impacts of carbon cycle changes and related ocean acidification.	• Number of Member State experts trained at NAEL in the use of nuclear and isotopic techniques to assess changes in pollution trends in relation to climate and environmental changes and risk based impacts of carbon cycle changes and related ocean acidification.
• Improved knowledge of the impact of ocean acidification on pollution levels and trends, bioaccumulation pathways of contaminants, and ecological and socioeconomic vulnerability of ecosystems and organisms of ecological and economic value.	• Number of Member State experts trained at NAEL in the use of nuclear and isotopic techniques to assess changes in pollution trends in relation to climate and environmental changes and risk based impacts of carbon cycle changes and related ocean acidification. • Number of Member State experts actively searching the OA-ICC for information on ocean acidification and potential socioeconomic impacts.

Projects

Title	Main Planned Outputs
2.4.2.001 Isotopic tools to study climate and environmental change	Publications.
2.4.2.002 Assessing carbon cycle and impacts of ocean acidification	Publications; OA-ICC web site; training course reports; contributions to joint activities under international projects; cooperation with other United Nations organizations and ocean acidification programmes.

Subprogramme 2.4.3 Nuclear Techniques to Monitor and Assess Pollution

Objectives:

— *To enhance the capability to apply nuclear, isotopic and related techniques for monitoring environmental contamination by radioactive and non-radioactive pollutants.*

— *To assist Member States to apply analytical, tracer and numerical tools to assess the origins, behaviour and trends of radioactive and non-radioactive pollutants, and their impact on the environment in support of environmental management decisions in routine and emergency situations.*

Outcomes	Performance Indicators
• Enhanced use of nuclear and related techniques for monitoring the occurrence, dispersion and trends of radioactive and non-radioactive pollutants and for assessments of their origin, behaviour and impacts on the environment.	• Number of Member States assisted in increasing the capabilities to use nuclear and isotopic techniques to assess radioactive and non-radioactive pollution and impacts of contaminants on the environment.

Outcomes	Performance Indicators
• Increased access of Member States to information, data, real time measurements and numerical tools supporting decision in environmental management in routine and emergency situations.	• Number of additional data made available to Member States in free Internet access through the MARiS database.

Projects

Title	Main Planned Outputs
2.4.3.001 Radioactive and non-radioactive pollution and impact on environment	Publications, guidelines on the application of nuclear, isotopic and related techniques to studying environmental pollution.

Subprogramme 2.4.4 Applying Analytical Techniques to Protect Biodiversity and Ecosystem Services

Objectives:

— *To provide technical support and expertise to Member States on the application of nuclear and isotopic techniques to understand the transfer, behaviour and impact of contaminants, biotoxins and radionuclides in biodiversity, food safety and ecosystem services.*

— *To develop recommended procedures for the determination of nuclear and non-nuclear pollutants in the environment and to provide guidelines on the behaviour and impact of radionuclides in the environment.*

— *To increase knowledge on accumulation and transfer of contaminants (radioactive and non-radioactive biotoxins relating to harmful algal blooms (HABs)) in organisms, especially those of importance as seafood and for trade.*

Outcomes	Performance Indicators
• Improved capacity of Member State laboratories to apply nuclear and non-nuclear techniques to assess the occurrence, transfer and impact of contaminants to the environment.	• Number of training courses with participation of Member States on the application of nuclear and non-nuclear techniques for marine and terrestrial monitoring. • Number of Member States assisted to improve their capacity to understand transfer processes, behaviour and impact of pollutants and radionuclides in various marine and terrestrial ecosystems.
• New recommended procedures for the determination of nuclear and non-nuclear pollutants in the environment and guidelines on the behaviour and impact of radionuclides in the environment.	• Number of novel low level, high accuracy and high precision analytical procedures developed to assess the occurrence and fate of pollutants in the environment. • Number of publications on application of methods to assess the behaviour and impact of contaminants in biota and the environment.
• Improved capacity of Member States in the accumulation and transfer of contaminants (radioactive and non-radioactive biotoxins relating to HABs) in organisms.	• Number of published scientific papers on experimentally derived transfer factors, uptake pathways, behaviour and fate of radionuclides, trace metals, biotoxins and organic contaminants in marine organisms.

Projects

Title	Main Planned Outputs
2.4.4.001 Developing methodologies for environmental monitoring and assessment	Analytical methodologies for the determination of nuclear and non-nuclear contaminants; capacity building in Member States to improve the knowledge of environmental monitoring, assessment and remediation.
2.4.4.002 Nuclear techniques for management of ecosystem service	Publications and training course reports relating to HAB programmes.

Programme 2.5 Radioisotope Production and Radiation Technology

Radioisotopes and radiation have numerous beneficial societal applications such as in health care, food safety and security, environment and industry. This Programme continues to focus on the most important and impactful applications in these diverse areas to address the needs of Member States. Technical activities will be aimed at facilitating building capacity in Member States in the production of radioisotopes and radiopharmaceuticals, and radiation technology applications complemented by technical documents, guidelines and web based educational materials. An emphasis on quality practice and regulatory compliance will continue.

The programme will continue to focus on e-learning modules in radiopharmacy and the regulatory aspects. Focus will also be on alternate technologies for production of Mo-99/Tc-99m, the most important medical isotopes, emerging therapeutic radionuclides including alpha emitters and radiopharmaceuticals based on molecular targeting.

The programme will also focus on applications of radiotracers and radiation technologies in industry and several other fields. In response to the interest in the Member States in the use of radiotracers and radiation technologies in industry, which has a huge economic impact, activities will be aimed at providing training in the use of evolving techniques, with an emphasis on quality assurance and safety. Radiation treatment capable of destroying undesirable biological and chemical components — either wilfully added or in waste effluents — is increasingly used to combat the challenges faced in protecting the environment. Activities will continue to disseminate technologies that address emerging needs and to develop high value products such as nano materials through radiation technology. Capacity building will be supported through guidance documents, e-learning modules and training courses conducted in cooperation with collaborating institutes.

Lessons learned from reviews, assessment, evaluations: Engagement of all the stakeholders from the beginning and quality assurance aspects of training and certification of personnel are considered essential for the successful deployment of technologies. Guidelines and training materials are hence planned to foster the application of radioisotope products and radiation technology, as well as to build local production capabilities in Member States. Internal coordination with other Programmes for greater synergy in the areas of radiopharmaceuticals and in the use of radiation processing technology in food industry will continue. Though applications of radiotracer and radiation based techniques in industries are well established in most industrially developed countries, these applications are continually evolving and are being optimized to suit emerging needs. Hence, the establishment of emerging radiation based techniques for industrial applications continues to be an area of importance, especially for developing countries.

Specific criteria for prioritization:

1. Activities will be focused on nuclear techniques that have a clear advantage in providing better life and in meeting the needs and interests of Member States, incorporating aspects of human resource development and an adequately high quality of safe working practices.

Programmatic changes and trends

Subprogramme 2.5.1 Radioisotope Products for Cancer Management and Non-communicable Diseases will address alternate technologies for production of ^{99}Mo/^{99m}Tc, novel ^{99}Mo/^{99m}Tc generators and emerging therapeutic radionuclides and radiopharmaceuticals. Emphasis will be given to the regulatory aspects that relate to the production of radioisotopes and radiopharmaceuticals and good manufacturing practice requirements, leading to quality assurance programmes. Actions aimed at education and training will be priorities, such as e-learning and programmes in collaboration with universities. In health care, focus will be on the development of diagnostic (based on ^{64}Cu, ^{68}Ga, ^{99m}Tc and ^{89}Zr) and therapeutic (based on ^{177}Lu, and new beta and alpha emitters) radiopharmaceuticals. Close coordination with Programmes 1.4 and 2.2 will continue in relevant areas. Industrial radiotracers and radionuclide generators will also be addressed.

Subprogramme 2.5.2 Radiation Technology Applications in Health Care, Industry and the Environment will address emerging technologies that relate to radiation processing, the modification of materials, and the use of radiotracers and non-destructive testing and nucleonic gauges. Emphasis will be given to education and training and also to the quality assurance activities relating to these technologies. Member States will be supported through education on radiation sciences and technologies by developing e-learning materials (web based tutorials), workshops, meetings and training courses, and the establishment of a repository of the most important literature. Efforts will be made towards activities involving IAEA Collaborating Centres.

Objectives, Outcomes and Performance Indicators by Programme

Programme 2.5 Radioisotope Production and Radiation Technology	
Objectives:	
— *To strengthen Member State capability to produce radioisotope products and radiopharmaceuticals and to apply radiation technology, thus contributing to improved health care, sustainable industrial development and cleaner environment in Member States.*	
Outcomes	**Performance Indicators**
• Enhanced production and use of radioisotopes and radiolabelled products in medical, industrial and research areas.	• Number of Member State laboratories adapting, or contributing to developing and improving, the methodologies for various products, techniques and applications.
• Knowledge disseminated and enhanced capabilities in Member States in the use of radiation technologies for applications in industry, environmental remediation, production of novel high performance materials and other areas of global importance.	• Number of publications, databases, guidelines and training materials made available to Member States.

Subprogramme 2.5.1 Radioisotope Products for Cancer Management and Non-communicable Diseases	
Objectives:	
— *To enhance Member State capability to locally produce radioisotopes and/or radiopharmaceuticals for use in support of the management of cancer and other NCDs.*	
Outcomes	**Performance Indicators**
• Increased availability of radioisotopes and/or radiopharmaceuticals that contribute to improving health care in Member States.	• Number of Member State laboratories involved in developing and utilizing the methodologies for radioisotope and radiopharmaceutical production. • Number of technical documents made available to Member States on topics on radioisotope and radiopharmaceutical production.
Projects	
Title	**Main Planned Outputs**
2.5.1.001 Development and production of medical radioisotopes	Guidelines on quality assurance for the production processes of radioisotopes and radiopharmaceuticals; alternate technologies for the production of ^{99}Mo/^{99m}Tc and ^{99m}Tc generator technologies, production methodologies for ^{68}Ga, ^{89}Zr, and new beta and alpha emitters.
2.5.1.002 Development of diagnostic and therapeutic radiopharmaceuticals	Guidelines on procedures and regulatory issues on radiopharmaceutical production; projects on the development of new radiopharmaceuticals; educational and training programmes, including e-learning; an international conference on radioisotope and radiopharmaceutical production.

Subprogramme 2.5.2 Radiation Technology Applications in Health Care, Industry and the Environment

Objectives:

— *To strengthen Member State capability to adopt and use radiation technologies for the development of products for health care and industry, for environment remediation, for preservation of artefacts, and for cleaner and safer industrial processes.*

Outcomes	Performance Indicators
• Increased availability and utilization of radiotracers and radiation technologies for improved health care, for safe and clean industrial development, and for environmental protection in Member States.	• Number of Member State laboratories involved in developing and utilizing the methodologies for radiation processing, material modification and industrial applications of radioisotope techniques. • Number of technical documents on the above topics made available to Member States.

Projects

Title	Main Planned Outputs
2.5.2.001 Applications of radiotracers and radiation techniques	E-learning, manuals, guidelines and training materials on sealed radiation source and radioactive tracers applications in industry as well as projects and meetings dealing with new technologies for the same applications; efforts towards activities involving IAEA Collaborating Centres.
2.5.2.002 Radiation processing: Technologies and applications	Methodologies and standard procedures for radiation applications for food safety, health care, industry and remediation of pollutants; e-learning modules for education of radiation technologies and projects; workshops and meetings dealing with emerging techniques.

Major Programme 2 — Nuclear Techniques for Development and Environmental Protection

Summary of Programme Structure and Resources
(excluding Major Capital Investments)

Programme / Subprogramme / Project	2018 at 2018 prices		2019 at 2018 prices	
	Regular Budget	Unfunded	Regular Budget	Unfunded
2.0.0.001 Overall management, coordination and common activities	1 810 491	104 297	1 810 098	104 297
2.0.0.002 Management of the coordinated research activities	770 480	-	770 480	-
2.S Corporate shared services	5 261 181	-	5 260 702	-
	7 842 153	**104 297**	**7 841 280**	**104 297**
2.1.1.001 Land management for climate smart agriculture	1 118 997	170 662	1 170 619	170 662
2.1.1.002 Water management for resource saving agriculture	1 031 733	310 122	980 197	310 122
2.1.1 Sustainable Land and Water Management	2 150 730	480 785	2 150 816	480 785
2.1.2.001 Improving animal production and breeding	698 767	26 865	687 987	26 865
2.1.2.002 Decreasing transboundary animal and zoonotic disease threats	1 561 072	920 385	1 571 852	629 174
2.1.2 Sustainable Intensification of Livestock Production Systems	2 259 839	947 250	2 259 839	656 039
2.1.3.001 Food irradiation applications using novel radiation technologies	326 809	115 344	281 044	115 344
2.1.3.002 Traceability for food safety and quality to enhance international trade	1 218 458	532 226	1 259 202	532 226
2.1.3.003 Preparation and response to radiological emergencies: Food and agriculture	206 897	6 716	212 002	6 716
2.1.3 Improvement of Food Safety and Food Control Systems	1 752 164	654 287	1 752 248	654 287
2.1.4.001 SIT and related technologies to manage major insect plant pests	1 605 186	442 193	1 586 122	442 193
2.1.4.002 Management of livestock insect pests for sustainable agriculture	1 076 370	162 345	1 030 951	162 345
2.1.4.003 Development of SITs for the control of disease transmitting mosquitoes	897 218	931 243	961 489	931 243
2.1.4 Sustainable Control of Major Insect Pests	3 578 774	1 535 781	3 578 562	1 535 781
2.1.5.001 Mutation induction for better adaptation to climate change	928 109	286 775	928 506	280 059
2.1.5.002 Integrated techniques for mutation breeding and biodiversity	983 745	438 657	983 611	445 374
2.1.5 Crop Improvement for Intensification of Agricultural Production Systems	1 911 854	725 432	1 912 117	725 432
2.1 Food and Agriculture	**11 653 361**	**4 343 535**	**11 653 583**	**4 052 324**
2.2.1.001 Health effects of nutrition and the environment	1 706 039	-	1 706 396	-
2.2.1 Nutrition for Improved Human Health	1 706 039	-	1 706 396	-
2.2.2.001 Nuclear medicine and radiology techniques in health conditions	1 337 681	-	1 305 550	-
2.2.2.002 Clinical data management and education in nuclear techniques in health	638 181	133 231	657 661	133 231
2.2.2 Nuclear Medicine and Diagnostic Imaging	1 975 862	133 231	1 963 211	133 231
2.2.3.001 Clinical radiation oncology	1 419 222	-	1 431 717	-
2.2.3.002 Biological effects of radiation	446 659	195 641	434 084	195 641
2.2.3 Radiation Oncology and Cancer Treatment	1 865 881	195 641	1 865 801	195 641
2.2.4.001 Calibration and auditing services	1 390 641	-	1 275 101	-
2.2.4.002 Developments in radiation dosimetry	417 872	-	591 233	-
2.2.4.003 Clinical medical radiation physics	1 203 991	-	1 158 997	-
2.2.4 Dosimetry and Medical Physics for Imaging and Therapy	3 012 504	-	3 025 331	-
2.2 Human Health	**8 560 287**	**328 872**	**8 560 738**	**328 872**

Major Programme 2 — Nuclear Techniques for Development and Environmental Protection
Summary of Programme Structure and Resources
(excluding Major Capital Investments)

Programme / Subprogramme / Project	2018 at 2018 prices		2019 at 2018 prices	
	Regular Budget	Unfunded	Regular Budget	Unfunded
2.3.1.001 IAEA isotope data networks for precipitation, rivers, and groundwater	743 503	-	703 176	-
2.3.1.002 Synthesis and dissemination of global isotope data & related information	352 388	-	488 372	-
2.3.1 Isotope Data Networks for Hydrology and Climate Studies	1 095 891	-	1 191 548	-
2.3.2.001 Comprehensive assessment of resources	608 368	-	576 674	-
2.3.2.002 Management strategies for groundwater and surface water resources	611 186	-	554 601	-
2.3.2 Isotope Based Assessment and Management of Water Resources	1 219 554	-	1 131 275	-
2.3.3.001 Characterization of fossil groundwater using long lived radionuclides	529 685	-	549 592	-
2.3.3.002 Noble gas isotopes for groundwater recharge and pollution studies	754 254	-	727 011	-
2.3.3 Radio-isotope Applications for Hydrology	1 283 939	-	1 276 604	-
2.3 Water Resources	**3 599 384**	**-**	**3 599 427**	**-**
2.4.1.001 Provision of reference products and laboratory performance support	1 509 432	59 321	1 509 432	21 571
2.4.1.002 Quality management and supporting network activities	954 468	-	954 468	-
2.4.1 IAEA Reference Products for Science and Trade	2 463 900	59 321	2 463 901	21 571
2.4.2.001 Isotopic tools to study climate and environmental change	684 653	-	684 653	-
2.4.2.002 Assessing carbon cycle and impacts of ocean acidification	798 965	644 322	798 965	544 515
2.4.2 Nuclear Techniques to Understand Climate and Environmental Changes	1 483 618	644 322	1 483 618	544 515
2.4.3.001 Radioactive and non-radioactive pollution and impact on environment	762 746	273 925	762 746	273 925
2.4.3 Nuclear Techniques to Monitor and Assess Pollution	762 746	273 925	762 746	273 925
2.4.4.001 Developing methodologies for environmental monitoring and assessment	942 508	233 901	942 508	212 330
2.4.4.002 Nuclear techniques for management of ecosystem service	778 507	86 285	778 507	-
2.4.4 Applying Analytical Techniques to Protect Biodiversity and Ecosystem Services	1 721 015	320 186	1 721 015	212 330
2.4 Environment	**6 431 279**	**1 297 754**	**6 431 279**	**1 052 341**
2.5.1.001 Development and production of medical radioisotopes	405 990	-	405 989	-
2.5.1.002 Development of diagnostic and therapeutic radiopharmaceuticals	686 623	-	687 648	-
2.5.1 Radioisotope Products for Cancer Management and Non-communicable Diseases	1 092 613	-	1 093 637	-
2.5.2.001 Applications of radiotracers and radiation techniques	621 672	-	620 780	-
2.5.2.002 Radiation processing: Technologies and applications	678 785	-	678 576	-
2.5.2 Radiation Technology Applications in Health Care, Industries and the Environment	1 300 457	-	1 299 356	-
2.5 Radioisotope Production and Radiation Technology	**2 393 070**	**-**	**2 392 993**	**-**
Major Programme 2 - Nuclear Techniques for Development and Environmental Protection	**40 479 534**	**6 074 459**	**40 479 300**	**5 537 835**

Major Programme 2 — Nuclear Techniques for Development and Environmental Protection
Activities unfunded in the Regular Budget

Project	Tasks	2018 Unfunded	2019 Unfunded
2.0.0.001 Overall management, coordination and common activities	Communication and outreach	104 297	104 297
	General management		
	Laboratory management		
	Ministerial Conference		
	Partnerships		
	Planning and coordination		
	Quality management		
2.1.1.001 Land management for climate smart agriculture	Minimize farming impacts on climate change by enhancing Carbon and Nitrogen capture, storage in agroecosystems	170 662	170 662
	Response to nuclear emergencies affecting Food and Agriculture		
	Research and development - Promoting R&D		
	Remediation of radioactive contamination in agriculture		
	Specialized services		
	Understanding the impact of climate change on soil erosion in upland agroecosystems		
2.1.1.002 Water management for resource-saving agriculture	Water, nutrient management for agriculture-driven non-point source pollution	310 122	310 122
	Optimizing soil, water and nutrient use efficiency in integrated cropping-livestock production systems		
	Response to drought and flooding emergencies affecting agriculture		
	Research and Development		
	Landscape salinity and water management for improving agricultural productivity		
	Specialized services		
2.1.2.001 Improving animal production and breeding	Application of nuclear and genomic tools to enable for the selection of animals with enhanced productivity traits	26 865	26 865
	Nuclear and related techniques for analysing forage including grassland and rangelands and improving feed digestibility		
	Animal nutrition, reproduction and breeding		
	Animal production services and management		

Major Programme 2 — Nuclear Techniques for Development and Environmental Protection
Activities unfunded in the Regular Budget

Project	Tasks	2018 Unfunded	2019 Unfunded
2.1.2.002 Decreasing transboundary animal and zoonotic disease threats	The diagnosis and control of African swine fever (ASF)	920 385	629 174
	Irradiation of Transboundary animal disease (TAD) pathogens as vaccines and immune inducers		
	Enhanced use of stable isotopes to trace and monitor Transboundary Animal Diseases (TADs)		
	Diagnosis and control of animal Trypanosomosis		
	Veterinary diagnostic laboratory network ("VETLAB Network") to prevent and control transboundary animal and zoonotic diseases		
	Animal Health research and development		
	Providing services and advice to Member States on animal health		
2.1.3.001 Food irradiation applications using novel radiation technologies	Promoting research and development through laboratory based activities	115 344	115 344
	Development of electron beam and X ray applications for food Irradiation (DEXAFI)		
	General management, services and advice to Member States and international organizations, and information exchange		
2.1.3.002 Traceability for food safety and quality and to enhance international trade	Research and development to build capacity in Member States laboratories	532 226	532 226
	Development and strengthening of radio-analytical and complementary techniques to control residues of veterinary drugs and related chemicals in aquaculture products		
	Accessible technologies for the verification of origin of dairy products as an example control system to enhance global trade and food safety		
	Nuclear techniques and novel instrumentation for low-Z isotope analysis in food products		
	Integrated radiometric and complementary techniques for mixed contaminants and residues in foods		
	Implementation of nuclear and related techniques to confirm the authenticity of foods with high value production chains and high value food property labelling claims		
	General management, services and advice to member states and international organizations, and information exchange		
2.1.3.003 Preparation and response to radiological emergencies: Food and Agriculture	Nuclear and radiological emergency preparedness and response (food and agriculture)	6 716	6 716
2.1.4.001 SIT and related technologies to manage major insect plant pests	Dormancy management to enable mass-rearing and increase efficacy of sterile insects and natural enemies	442 193	442 193
	SIT for integration with biocontrol to control insect pests in greenhouses		
	CRP on Improved field performance of sterile male Lepidoptera to ensure success in SIT programmes		
	Simultaneous application of SIT and MAT to enhance pest Bactrocera management		
	Use of symbiotic bacteria in fruit pests in support of SIT application		
	Individual Research Contracts		
	Management, services, information exchange and technology transfer		
	Applied research and technical development		
	Promoting capacity building and technology transfer to Member States		

Major Programme 2 — Nuclear Techniques for Development and Environmental Protection

Activities unfunded in the Regular Budget

Project	Tasks	2018 Unfunded	2019 Unfunded
2.1.4.002 Management of livestock insect pests for sustainable agriculture	Improvement of colony management in insect mass-rearing for SIT applications	162 345	162 345
	CRP "Comparing Rearing Efficiency and Competitiveness of Sterile Male Strains Produced by Genetic, Transgenic or Symbiont-based Technologies".		
	Enhancing vector refractoriness to trypanosome infection		
	Individual Research Contracts		
	Management, services, information exchange and technology transfer		
	Applied research and technical development		
2.1.4.003 Development of SITs for the control of disease transmitting mosquitoes	Generic approach for the development of genetic sexing strains for SIT applications	931 243	931 243
	Mosquito handling, transport, release and male trapping methods		
	Development of sex separation methods and strains for mosquito species		
	Individual Research Contracts		
	Management, services, information exchange and technology transfer		
	Applied research and technical development		
2.1.5.001 Mutation induction for better adaptation to climate change	Disease resistance in cereals for better adaptation to climate change	286 775	280 059
	Improving crop resilience to drought through mutation breeding		
	Abiotic stress tolerance in crops for intensification of climate smart agriculture		
	International symposium on Plant Mutation Breeding and Biotechnology		
	Research and Development		
	Management, services, information exchange and technology transfer		
2.1.5.002 Integrated techniques for mutation breeding and biodiversity	Efficient screening techniques to identify mutants with disease resistance for coffee and banana plants	438 657	445 374
	Ion Beam Irradiation for Mutation Breeding		
	Mutation breeding for crop resistance to Striga infection for sustainable food production		
	Research and Development		
	Management, services, information exchange and technology transfer		

Major Programme 2 — Nuclear Techniques for Development and Environmental Protection
Activities unfunded in the Regular Budget

Project	Tasks	2018 Unfunded	2019 Unfunded
2.2.2.002 Clinical data management and education in nuclear techniques in health	Curriculum and leadership in nuclear medicine and diagnostic imaging	133 231	133 231
	Distance assisted training for nuclear medicine professionals		
	General management		
	Human health Campus		
	Nuclear medicine database		
	Quality management audits in nuclear medicine practices		
	Quality clinical research		
	Webinars and on-line training		
2.2.3.002 Biological effects of radiation	Capacity building	195 641	195 641
	General management		
	Biological dosimetry in radio-oncology, nuclear medicine and radiology		
	Radiation biology laboratory		
	Establishing strategies and standards in radiation biology		
	Instructive surfaces and scaffolds for tissue engineering using radiation technology		
2.4.1.001 Provision of reference products and laboratory performance support	Capacity building for external laboratories related to quality management	59 321	21 571
	General management and administration		
	Coordination of laboratory networks related to NAEL		
	Establishment of a quality management system at NAEL		
	Development and test of analytical recommended methods		
2.4.2.002 Assessing carbon cycle and impacts of ocean acidification	Capacity building	644 322	544 515
	Applied radioecological tracers to assess coastal and marine ecosystem health		
	General management and administration		
	Knowledge improvement		
	Coordination of the Ocean Acidification International Coordination Centre (OA-ICC)		

Major Programme 2 — Nuclear Techniques for Development and Environmental Protection
Activities unfunded in the Regular Budget

Project	Tasks	2018 Unfunded	2019 Unfunded
2.4.3.001 Radioactive and non-radioactive pollution and impact on environment	Capacity building in Member States for measurement and assessment of radioactive and non-radioactive pollution and its impact on the environment Levels, trends and radiological effects of radionuclides in the marine environment Study of global temporal trends of pollution in selected coastal areas by the application of isotopic and nuclear Tools General management and administration Improve knowledge in radioactive and non-radioactive pollution and its ecosystem impacts Monegasque government annual contribution to the IAEA Collaboration with Member States for implementation of monitoring and assessment programmes	273 925	273 925
2.4.4.001 Developing methodologies for environmental monitoring and assessment	Capacity building, in Member States, for improving knowledge in environmental monitoring, assessment and remediation Joint activities with other international programmes Application of Carbon and Nitrogen stable isotopes for marine pollution studies Environmental behaviour and potential biological impact of radioactive particles Analytical problems in the determination of mercury as a global pollutant in the marine environment Development and application of methodologies for environmental assessment and remediation General management of the subprogramme application of nuclear techniques for the terrestrial and marine environmental studies Development of analytical methodology for determination of non-nuclear and nuclear contaminants	233 901	212 330
2.4.4.002 Nuclear techniques for management of ecosystem services	Capacity building in Member States for improving management and safe use of ecosystem Toxicological and ecotoxicological assessment of Benthic algae and their toxins to achieve sustainable management of marine ecosystems services General management and administration Improving knowledge and tools for sustainable and safe use of environmental resources in Member States	86 285	-
Grand Total		**6 074 459**	**5 537 835**

Major Programme 3
Nuclear Safety and Security

Introduction

Major Programme 3 promotes the worldwide achievement and maintenance of high levels of nuclear safety and security to protect people, society and the environment from ionizing radiation. It meets the demand for a higher level of safety at the growing number of nuclear installations — including uranium mining facilities, as well as at existing nuclear power plants and research reactors — whose average age continues to increase. It also addresses the wider use of ionizing radiation in industry, medicine and agriculture; the continuous threat of nuclear terrorism; and the accumulation of radioactive waste and spent fuel. In conducting these activities the Agency will foster a strong safety and security culture.

The Major Programme performs the Agency's statutory function of establishing standards of safety and providing for their application in Member States upon request and in its own operations. The Agency assists Member States in building national capacities by promoting international cooperation, and by transferring nuclear safety knowledge from States with mature nuclear energy programmes to States with emerging nuclear energy programmes, through knowledge networks.

The Major Programme will address priority areas from application of the methodology described in GOV/INF/2016/10 to strengthen nuclear, radiation, transport and waste safety in a comprehensive manner, addressing areas such as design safety, external hazards assessment, safety culture, communication on safety, severe accident management, post-accident remediation and transition to recovery; as well as those aspects related to extending the operating life of nuclear power plants, decommissioning of facilities, disposal of high level radioactive waste, innovative technologies such as fast reactors and small and medium sized or modular reactors, and the safety of radiation sources used in non-power applications.

The security of nuclear and other radioactive material and facilities remains a high priority. The Agency develops and publishes nuclear security recommendations and guidance and maintains an effective information platform for their application. At the request of a State, the Agency assists in developing and implementing a robust nuclear security infrastructure, including prevention, detection and response.

Despite the nuclear safety and security arrangements in place, the risk of a nuclear or radiological emergency — of various origins or severity — cannot be entirely eliminated. This Major Programme is also focused on providing assistance for developing and strengthening national and international capacities to prepare to effectively respond to, and mitigate, the consequences of such an emergency. The Agency is the global focal point for international preparedness and response to nuclear and radiological incidents or emergencies. The Agency implements its response roles under this Major Programme.

During this biennium, the internal regulation of radiation safety and nuclear security, as well as internal radiation safety technical services will be strengthened.

Objectives:	
— *To continuously improve global safety and security through the establishment and wide application of safety standards and security guidance, worldwide subscription adherence to international legal instruments, strengthened peer reviews and advisory services, capacity building and networking.* — *To continuously enhance national, regional and international capabilities and arrangements for ensuring a high level of safety and security and emergency planning and response.*	
Outcomes	**Performance Indicators**
• IAEA contributions to strengthen nuclear safety and security capabilities and culture at the national, regional and international levels.	• Percentage of Agency recommendations from safety and security services addressed by Member States.

Outcomes	Performance Indicators
• A current, comprehensive suite of safety standards and security guidance and strengthened peer reviews and advisory services for nuclear safety and security.	• Number of new or revised safety standards and security guidance. • Total number of peer review and advisory services requested by Member States in areas of nuclear safety and security.
• A global knowledge sharing network on nuclear safety.	• Number of thematic safety areas of the safety networks. • Number of safety networks partners.

Projects

Title	Main Planned Outputs
3.0.0.001 Overall management, coordination, communication and common activities	Nuclear Safety Review input to the Medium Term Strategy implementation report; Programme Performance Report; reports responding to General Conference resolutions on nuclear safety and security; International Nuclear Safety Group (INSAG) publications; common strategy for capacity building; advocacy materials.
3.0.0.002 Capacity building, knowledge networks and partnerships	Capacity building for safety, including: self-assessment at governmental and organizational levels; the Integrated Capacity Building Plan; Learning Management System; nuclear safety knowledge bases; national nuclear safety knowledge platforms; international conferences and senior level meetings.
3.0.0.003 Coordination of safety standards and security guidance	Safety Requirements, Safety Guides, Nuclear Security Recommendations, Nuclear Security Implementing Guides, Nuclear Security Technical Guidance, and supporting safety and security related publications.
3.0.0.004 Internal control for radiation safety and nuclear security	Procedures and guidelines; reports from IAEA laboratory inspections; a guide on the protection of individuals participating in Agency activities; quality management system documents.

Programme 3.1 Incident and Emergency Preparedness and Response

Member States and the international community have to be prepared to effectively respond to nuclear and radiological emergencies should they occur. The Programme supports Member States to enhance specific elements of emergency preparedness and response (EPR), for example developing and maintaining national infrastructure elements, improving cooperation between safety and security communities, assessing hazards and emergency management, in particular in severe emergencies, and keeping the international community and the general public well informed. The Programme also assists Member States to develop effective national and global response capabilities and arrangements to minimize the impacts of nuclear or radiological events.

An effective response to an emergency requires a coherent initial assessment followed by adequate emergency management, all of which can only be achieved through coordinated EPR activities. The Agency is the focal point in EPR for nuclear and radiological emergencies, independent of whether they arise from an accident, natural disaster, negligence, nuclear security event or any other cause. This role derives from responsibilities mandated to the Agency by the Early Notification and Assistance Conventions and the Policy-Making Organs. It is also established in a number of mechanisms and practical arrangements, and builds upon the expertise and long experience of the Agency in the area of EPR. The Agency also has a statutory function to develop safety standards and to provide for their application. Finally, the Agency has an important role in assessing nuclear and radiological events and in communicating the significance and potential consequences of these events.

Lessons learned from reviews, assessment, evaluations: This programme takes into account Member State needs and lessons identified during the performance assessment of the previous programmatic cycle, particularly in relation to capacity building and EPR communication arrangements.

Specific criteria for prioritization:

1. Activities necessary to fulfil obligations under the Early Notification and Assistance Conventions.
2. Activities enhancing Member State EPR in line with the General Safety Requirements (GSR) Part 7, *Preparedness and Response for a Nuclear or Radiological Emergency*.
3. Activities enhancing international EPR.

Programmatic changes and trends

Subprogramme 3.1.1 National and International Emergency Preparedness is a continuation and follow-up of relevant EPR activities from the preceding biennial programme cycle. It was prepared based on the EPR needs identified through the assessment and evaluation of national and international EPR, taking into account long term recommendations of the *International Action Plan for Strengthening the International Preparedness and Response System for Nuclear and Radiological Emergencies*, conclusions of the competent authority meetings and meetings of the Inter-Agency Committee on Radiological and Nuclear Emergencies (IACRNE). In particular, it will improve the capability of the IAEA and Member States to communicate the technically challenging topic of radiological monitoring data to the public during a nuclear or radiological emergency.

Subprogramme 3.1.2 IAEA IES and Operational Arrangements with Member States and International Organizations is a continuation, follow-up and consolidation of relevant activities aimed at maintaining and continuously enhancing the Agency's Incident and Emergency System (IES) and operational arrangements with Member States and relevant international organizations. It was prepared based on the needs identified through the evaluation of exercises and competent authorities meeting conclusions.

Objectives, Outcomes and Performance Indicators by Programme

<table>
<tr><th colspan="2">Programme 3.1 Incident and Emergency Preparedness and Response</th></tr>
<tr><td colspan="2">Objectives:
— To maintain and further enhance efficient Agency, national and international EPR capabilities and arrangements for effective response to nuclear or radiological incidents and emergencies independent of the triggering events.
— To improve exchange of information on nuclear or radiological incidents and emergencies among Member States, international stakeholders and the public and media in the preparedness stage and during the response to nuclear or radiological incidents and emergencies, independent of the triggering events.</td></tr>
<tr><th>Outcomes</th><th>Performance Indicators</th></tr>
<tr><td>• IAEA contributions to enhanced EPR arrangements and capabilities to effectively respond to an incident or emergency at the national and international level.</td><td>• Percentage of recommendations from peer review missions for the improvement of national and international EPR addressed.</td></tr>
<tr><td>• Enhanced EPR arrangements and capabilities to effectively respond to an incident or emergency at the Agency level.</td><td>• Percentage of recommendations from internal IES exercises for improvement of the Agency's preparedness and response system addressed.</td></tr>
<tr><td>• Improved information systems (USIE, IRMIS and EPRIMS) for providing and sharing technical information and monitoring data in nuclear or radiological incidents and emergencies.</td><td>• Percentage of recommendations from the utilization of information systems for improvement of the information sharing systems in nuclear or radiological emergencies addressed.</td></tr>
</table>

Subprogramme 3.1.1 National and International Emergency Preparedness

Objectives:

- *To strengthen EPR arrangements and capabilities at the national level through the development and assistance in application of safety standards, operational guidelines and tools, through capacity building activities and EPR peer reviews.*
- *To enhance the transparency and knowledge sharing in the area of EPR through a more effective and comprehensive use of peer review missions and collaborative networks.*
- *To strengthen the international EPR framework.*

Outcomes	Performance Indicators
• IAEA contributions to strengthened national EPR arrangements and capabilities and enhanced transparency in sharing of information on EPR and in incidents and emergencies.	• Number of Member States that have provided or updated input in the Emergency Preparedness and Response Information Management System (EPRIMS). • Percentage of Member States in EPRIMS with high implementation of EPR safety standards.
• Strengthened inter-agency EPR arrangements and enhanced international cooperation and coordination in EPR.	• Percentage of recommendations from IACRNE meeting and related exercises and/or identified lessons for improvement of international EPR arrangements addressed.

Projects

Title	Main Planned Outputs
3.1.1.001 Member State emergency preparedness	EPR safety standards, guidance and tools; training events and training materials; regional capacity building centres; populated EPRIMS database; EPR educational and training networks; peer review and assistance mission reports.
3.1.1.002 International emergency management	Joint Plan reviewed; IACRNE meeting reports; CAM-2018 meeting report; IACRNE procedures reviewed and updated; IACRNE web site maintained; coordinated EPR activities at the international level; harmonized inter-agency response to nuclear or radiological emergency, irrespective of the triggering events.

Subprogramme 3.1.2 IAEA IES and Operational Arrangements with Member States and International Organizations

Objectives:

- *To maintain and continuously enhance arrangements for effective response: notification, exchange of information, assessment and prognosis, international assistance, public communication, and coordination of inter-agency response.*
- *To respond effectively to nuclear or radiological incidents and emergencies independent of the triggering events.*
- *To develop, maintain and continuously improve systems facilitating the exchange of specific information in an incident or emergency.*

Outcomes	Performance Indicators
• Effective IAEA response and response coordination with the States and relevant international organizations in a nuclear or radiological incident or emergency.	• Percentage of recommendations by competent authorities addressed.
• Efficient international assistance mechanism and effective provision of requested assistance.	• Number of Member States registering or updating their national assistance capabilities.

Projects	
Title	**Main Planned Outputs**
3.1.2.001 Preparedness of the Incident and Emergency System (IES)	Annual training programme, schedule and training records; maintained and enhanced response arrangements (appendices to the Response Plan for Incidents and Emergencies (REPLIE), procedures, checklists and instructions); updated contact point lists; ConvEx-1 reports.
3.1.2.002 Response and assistance arrangements with Member States and international organizations	Effective response to nuclear or radiological emergencies; operational protocols with International Organizations; trained counterparts; ConvEx-2 exercises, including exercises on assessment and prognosis, public information and nuclear security; updated and improved arrangements for international assistance.
3.1.2.003 Public communication in emergencies	Agency publications; International Nuclear and Radiological Event Scale (INES) guidance; training materials, outreach activities (newsletter, tweets, web articles and brochures), workshops and training.

Programme 3.2 Safety of Nuclear Installations

Lessons learned and conclusions drawn from the IAEA Action Plan on Nuclear Safety, the Report on the Fukushima Daiichi accident, the principles of the Vienna Declaration, and lessons and feedback from safety review services will continue to contribute to programme development.

The application of the safety standards will continue to be promoted, including through the conduct, upon request, of peer reviews and advisory services. The effectiveness and efficiency of these services, as important components to assist Member States in their effort to continuously improve the regulatory infrastructure and the safety of nuclear installations, will be assessed and enhanced as necessary. In addition, Member States will be supported in building their capacity and developing their safety infrastructure through enhanced international cooperation and in line with the global nuclear safety framework. Sustainability of Member State capacity building will be strengthened with particular focus on: safety assessment capabilities, taking into account advances in technology; safety assessment methods and tools; strong safety design requirements and management systems; and leadership and safety culture. The results and research and development will be more widely disseminated for the benefit of all Member States.

Lessons learned from reviews, assessment, evaluations: The Programme takes into account the results of the Sixth Review Meeting of the Convention on Nuclear Safety (CNS), including the Diplomatic Conference, and conclusions of Agency conferences. In order to build a more comprehensive approach and to address the needs of Member States, the Programme will take into account findings and recommendations of safety review services, including those relating to the independence of regulatory bodies, the competency of human resources, safety assessment, and safety culture. The Programme will also take into account lessons identified during the performance assessment of the previous programmatic cycle.

Specific criteria for prioritization:

1. Activities necessary for establishing safety standards and supporting conventions and codes of conduct.
2. Activities that provide for the application of IAEA safety standards.
3. Activities for capacity building and strengthening the exchange of information.

Programmatic changes and trends

Subprogramme 3.2.1 Governmental Regulatory Framework and Safety Infrastructure Development will take account of Countries which continue to enhance their regulatory framework and implementation of core regulatory functions, both in countries with mature nuclear power programmes and in those either restarting or embarking on nuclear power programmes. The projects in this subprogramme are tailored to build upon the Agency's work on assisting States in developing their governmental and regulatory frameworks, including addressing the results of peer review missions in the regulatory area. Enhancing the technical and managerial capacity of regulatory body staff for nuclear installations, including leadership and safety culture, is specifically addressed.

Subprogramme 3.2.2 Safety Assessment of Nuclear Installations: In line with the renewed interest in nuclear power, construction projects for new reactor designs worldwide and the intended long term operation of existing installations, there is a need to revise the safety assessment and design safety standards. Emphasis will be placed on assistance in a thorough application of the safety standards, which will be achieved through Advisory and Technical Safety Review services together with the deployment of safety assessment competency and capacity building programmes. The safety principles of nuclear power plants novel designs will be addressed.

Subprogramme 3.2.3 Safety and Protection Against External Hazards will address the many challenges to the safety and protection against external hazards, among which the latest experiences highlight: the effects of low probable events beyond the design basis; the importance of accurate knowledge and scientific evidence in periodic safety reviews; combined external hazards that simultaneously affect multiple units on a site; and sharing mechanisms of operating experiences of external events. It is expected that requests from Member States for technical insights on those issues will increase. The Agency needs to deliver safety documents and safety review services containing practical advice to Member States in an effective and efficient manner.

Subprogramme 3.2.4 Safe Operation of Nuclear Power Plants will shift its focus towards enhancing Member State capability to review long term operation and ageing management and to implement the new safety standard GSR Part 2, *Leadership and Management for Safety*. These areas will be included in the Operational Safety Review Team (OSART) service, a stand alone review service or in capacity building through systematic self-assessment and continuous improvement. The Agency will continue to support Member States on the use of operating experience for safety performance improvement.

Subprogramme 3.2.5 Safety of Research Reactor and Fuel Cycle Facilities will address the increased focus on updating the safety standards and developing supporting documents, and conducting safety review services and capacity building activities including training that supports the application of the *Code of Conduct on the Safety of Research Reactors* and IAEA safety standards on fuel cycle facilities. These activities will address the relevant lessons learned from experiences, including in the area of regulatory supervision, safety assessment, safety culture and emergency preparedness.

Objectives, Outcomes and Performance Indicators by Programme

<table>
<tr><th colspan="2">Programme 3.2 Safety of Nuclear Installations</th></tr>
<tr><td colspan="2">Objectives:</td></tr>
<tr><td colspan="2">— To support Member States in improving the safety of nuclear installations during site evaluation, design, construction and operation through the development of safety standards and providing for their application.
— To support Member States in establishing and strengthening the safety infrastructure including through safety reviews and advisory services.
— To assist adherence to, and facilitate implementation of, the CNS and the Code of Conduct on the Safety of Research Reactors.
— To support Member States in capacity building through education and training, encouraging the exchange of information and operating experience, as well as international cooperation including the coordination of research and development activities.</td></tr>
<tr><th>Outcomes</th><th>Performance Indicators</th></tr>
<tr><td>• IAEA contributions in providing Member States with an integrated, comprehensive and consistent set of up to date safety standards in the area of legal and governmental infrastructure and safety of nuclear installations.</td><td>• Percentage of new and revised safety standards and supporting documents, against the planned number, relevant to governmental organizations and the safety of nuclear installations.</td></tr>
<tr><td>• IAEA contributions to improved regulatory infrastructure and enhanced safety of nuclear installations in Member States.</td><td>• Number of Safety Review Services, including peer review missions, technical safety reviews and advisory services.
• Percentage of Agency recommendations from safety services addressed by regulatory authorities, operators of nuclear installations, reactor vendors and designers, and technical support and research organizations.</td></tr>
</table>

Outcomes	Performance Indicators
• IAEA contributions to enhanced competency of Member States in the areas of safety infrastructure and safety of nuclear installations, with particular focus on the effectiveness of regulatory control, management, leadership and culture for safety, and design and operational safety.	• Number of Member States using Agency training material in regulatory area to support sustainable education and training. • Number of training events conducted in the areas of safety infrastructure and safety of nuclear installations.

Subprogramme 3.2.1 Governmental Regulatory Framework and Safety Infrastructure Development

Objectives:

— *To support Member States in establishing and maintaining effective, independent and sustainable governmental, regulatory and safety frameworks for nuclear installations through the development of up to date safety standards.*

— *To support Member States in enhancing their governmental and regulatory frameworks for nuclear installations through peer reviews, advisory services and activities supporting the application of IAEA safety standards.*

— *To support Member State regulatory bodies in enhancing their regulatory and safety capacity building process, and in fostering strong leadership and safety culture.*

Outcomes	Performance Indicators
• IAEA contributions to an integrated, comprehensive and consistent set of up to date safety standards in the area of governmental and regulatory framework for the safety of nuclear installations available to Member States.	• Percentage of new and revised safety standards and supporting documents in this area against the number of planned.
• IAEA contributions to improved regulatory infrastructure in Member States.	• Number of safety review missions (e.g. Integrated Regulatory Review Service (IRRS) and expert assistance missions). • Percentage of Agency recommendations from safety services addressed by Member States.
• IAEA contributions to enhanced competency of Member State regulatory bodies to support the safe use of nuclear installations for emerging and mature nuclear programmes.	• Number of Member States using Agency training material in regulatory area to support sustainable education and training programmes. • Number of Member States utilizing the Guidelines for Systematic Assessment of Regulatory Competence Needs (SARCoN Guidelines) tool and methodology for competency building.

Projects

Title	Main Planned Outputs
3.2.1.001 Regulatory effectiveness and regulatory networking	Safety standards, guidelines (i.e. programme implementation guidance), information exchange and mission reports; information in the International Regulatory Network (RegNet); an international conference on regulatory effectiveness.
3.2.1.002 Safety standards and CNS support	Safety standards and reports.
3.2.1.003 Capacity building for installation safety and regulatory functions	Reports; training materials; enhanced web platforms and multimedia products.

Subprogramme 3.2.2 Safety Assessment of Nuclear Installations

Objectives:

- *To support Member States in achieving a high level of safety in nuclear power plant design and excellence in safety assessment through the provision of up to date safety assessment and design safety standards based on current technology and best practices, and providing for their application.*
- *To support Member States with advice and review services in the implementation of safety assessment and design safety standards.*
- *To support Member States in developing safety assessment knowledge requirements and to provide support in safety assessment competency building.*

Outcomes	Performance Indicators
• IAEA contributions to an integrated, comprehensive and consistent set of up to date safety standards and supporting documents in the areas of safety assessment and design safety available to Member States.	• Percentage of new and revised safety standards and supporting documents in this area against the number of planned.
• IAEA contributions to enhanced safety of nuclear power plant design and safety assessment performance in Member States.	• Number of safety review services performed in support of safety standards application.
• IAEA contributions to enhanced competency in Member States in the area of safety assessment and design safety.	• Number of Member States taking advantage of training and workshop sessions and the Safety Assessment Education and Training (SAET) Programme.

Projects

Title	Main Planned Outputs
3.2.2.001 Safety standards for NPP design and safety assessment	New and revised safety standards and associated technical documents and reports; review and advisory reports and documents.
3.2.2.002 Safety assessment competency building, methods and approaches	Training materials, training and workshop sessions, continued SAET programme and deployment of safety assessment capacity and competency building programmes; documents and reports devoted to topical issues on safety assessment and design safety.

Subprogramme 3.2.3 Safety and Protection Against External Hazards

Objectives:

- *To support Member States in enhancing site and installation design safety with respect to external hazards, including hazards resulting from human activity, through the development of safety standards and providing for their application.*
- *To support Member States in enhancing site and installation design safety with respect to external hazards, including hazards resulting from human activity, through periodic safety reviews and peer review services.*
- *To support Member States in capacity building through education and training.*

Outcomes	Performance Indicators
• IAEA contributions to an integrated, comprehensive and consistent set of up to date safety standards in the area of safety and protection against external hazards available to Member States.	• Percentage of new and revised safety standards and supporting documents in this area against the planned number.
• IAEA contributions to improved safety and protection against external hazards in Member States.	• Number of SEED safety review services requested by the Member States. • Percentage of Agency recommendations from safety services addressed in regulatory authorities and nuclear installations.

Outcomes	Performance Indicators
• IAEA contributions to enhanced competency in Member States in the area of safety and protection against external hazards and external hazard assessment.	• Number of training events conducted on the subject.

Projects

Title	Main Planned Outputs
3.2.3.001 Site evaluation and installation design safety	New or revised Safety Requirements, Safety Guides and supporting documents corresponding to site selection, evaluation, protection against external hazards and installation design; reports (SEED missions) to evaluate site and safety performance of installations against external events.
3.2.3.002 Site evaluation methods and tools for installation safety assessment	New or updated Safety Reports and TECDOCs required for the implementation of Safety Guides in areas that need guidance and are not addressed by other Agency publications; workshops on capacity building activities and information dissemination at international forums.

Subprogramme 3.2.4 Safe Operation of Nuclear Power Plants

Objectives:

— *To support Member States in improving operational safety through the development of safety standards and other publications and providing support for their application.*

— *To support Member States in improving operational safety through review services for operational safety, safe long term operation and ageing management, operating experience and management, and leadership and culture for safety.*

— *To support Member States in capacity building by arranging training and workshops and the provision of self-assessment advice.*

Outcomes	Performance Indicators
• IAEA contributions to an integrated, comprehensive and consistent set of up to date safety standards in the area of operational safety, safe long term operation and ageing management, operating experience and management, and leadership and culture for safety available to Member States.	• Percentage of new and revised safety standards and supporting documents in this area against the number of planned.
• IAEA contributions to improved operational safety in Member States.	• Number of OSART, Safety Aspects of Long Term Operation (SALTO), operating experience, and leadership and culture for safety review missions. • Percentage of Agency recommendations from safety review services addressed by Member States.
• IAEA contributions to enhanced competency in Member States in the areas of operational safety, safe long term operation, ageing management, operating experience, and management, leadership and culture for safety.	• Number of training events conducted in the areas of OSART, long term operation, ageing management, operating experience, and management, leadership and culture for safety.

Projects

Title	Main Planned Outputs
3.2.4.001 Operational safety performance	OSART mission reports; training materials on corporate/ plant self-assessment; updated database of OSART Mission Results (OSMIR); integrated revision of the safety guides for operational safety; publication of OSART mission highlights; dissemination of OSART related information on a dedicated web site.

Title	Main Planned Outputs
3.2.4.002 Sharing and use of international operating experience	Event reports from nuclear power plants shared through IRS system; IRS topical reports (IRS Blue Books and Highlights); Peer Review of Operational Safety Performance Experience (PROSPER) mission reports; Safety Guides and TECDOCs for operating experience and continuous performance improvement programmes; training courses on performance improvement, operating experience and root cause analysis.
3.2.4.003 Leadership, management for safety and safety culture in Member States	Revised safety guides on the Leadership and Management for Safety requirements; safety culture continuous improvement programmes for Member States; independent safety culture assessments on request; reports on topics and issues; training activities.
3.2.4.004 Safety of long term operation	SALTO mission reports and reports on ageing management and time limited ageing analyses; revision of the Safety Guide on ageing management; implementation and enhancement of the International Generic Ageing Lessons Learned (IGALL) Safety Report.

Subprogramme 3.2.5 Safety of Research Reactor and Fuel Cycle Facilities

Objectives:

- *To support Member States in improving the safety of research reactors and fuel cycle facilities through the development of safety standards and providing for their application, and the implementation of the Code of Conduct on the Safety of Research Reactors.*
- *To support Member States to establish and maintain safety infrastructure for research reactors and fuel cycle facilities through safety review services.*
- *To support Member States in capacity building by arranging training and workshops and by encouraging sharing of operating experience.*

Outcomes	Performance Indicators
• IAEA contributions to an integrated, comprehensive and consistent set of up to date safety standards in the area of safety of research reactors and nuclear fuel cycle facilities available to Member States.	• Percentage of new and revised safety standards and supporting documents in this area against the number of planned.
• IAEA contributions to improved safety of research reactors and nuclear fuel cycle facilities in Member States.	• Number of safety review services conducted. • Percentage of Agency recommendations from safety review services addressed by the Member States.
• IAEA contributions to enhanced competency in Member States in the areas of safety of research reactors and nuclear fuel cycle facilities.	• Number of training events conducted on the subject.

Projects

Title	Main Planned Outputs
3.2.5.001 Safety of research reactors	Safety standards and supporting publications; meeting and mission reports; conference proceedings; training materials; Member State self-assessments; the Incident Reporting System for Research Reactors (IRSRR) database.
3.2.5.002 Safety of fuel cycle facilities	Safety standards and supporting publications; meeting and mission reports; training materials; the Fuel Incident Notification and Analysis System (FINAS) database.

Programme 3.3 Radiation and Transport Safety

This Programme focuses on the protection of people and the environment from the harmful effects of ionizing radiation. It covers the establishment of safety standards and the provision for their application — both being statutory functions of the Agency. Capacity building, including education and training, and networking, as well as communication strategies on radiation risks, are cross-cutting key elements of the global safety framework, and they are included throughout the Programme. The importance of international undertakings such as applicable conventions and codes of conduct, as an element of the safety framework, is also recognized. The activities within the Programme are mainly ongoing with some changes of emphasis. The target audience includes national bodies and relevant international organizations dealing with radiation and transport safety issues. The beneficiaries are governments, regulators, workers, patients, the general public, and users and operators.

The IAEA safety standards and guides will continue to be reviewed, taking into account unnecessary and unanticipated exposures. This includes providing for the implementation of IAEA safety standards and the *Code of Conduct on the Safety and Security of Radioactive Sources*. This is done through various means, including, inter alia, peer review and advisory services, outreach and the exchange of information, guidance and training materials. These activities provide essential feedback and assurances on the overall effectiveness of the Programme, as well as facilitating planning and anticipating future issues.

Lessons learned from reviews, assessment, evaluations: The requirements stated in safety standard SSR-6, Regulations for the Safe Transport of Radioactive Material, are globally implemented by their adoption into the global transport regulations for air and sea modes and by Member States through their national land transport regulations for road and rail. Consequently, industry and regulatory bodies value the completeness and consistency of SSR-6 and the requisite extensive interaction with other international organizations. Peer review and advisory missions are in strong demand and show the importance of stable, adequately resourced and effectively independent regulatory systems. Support by Member States for the *Code of Conduct on the Safety and Security of Radioactive Sources*, with its supplementary *Guidance on the Import and Export of Radioactive Sources* remains strong. The IAEA strategic approach to education and training continues to assist Member States in strengthening safety infrastructure.

Specific criteria for prioritization:

1. Strengthening the global safety framework by establishing safety standards and cooperating with other international organizations which also assist harmonization and international undertakings.
2. Supporting Member States in strengthening regulatory infrastructure through peer review and advisory missions.
3. Promoting the *Code of Conduct on the Safety and Security of Radioactive Sources* and measures to assist Member States in strengthening national strategies with regard to the end of life for sealed sources to avoid sources being orphaned.

Programmatic changes and trends

Subprogramme 3.3.1 Radiation Safety and Monitoring focuses on assistance to Member States in reaching or maintaining the highest level of radiation safety. In 2018–2019, the Agency will continue to encourage Member States to implement GSR Part 3, *Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards*, and associated Safety Guides. The Agency, in cooperation with WHO, will focus its effort on improving awareness of and need for good practice in radiation protection, particularly in the area of justification and optimizations of medical exposures.

The Agency, in cooperation with ILO, will work on implementation of the recommendations from the 2nd International Conference on Occupational Radiation Protection, and will assist ILO in preparing relevant radiation protection documentation in occupational radiation protection area. Radiation safety technical services will be reinforced, taking into account the recommendations of the Office of Internal Oversight Services (OIOS), and will continue to assist in ensuring radiation safety of the Agency staff and experts by providing a high quality of accredited services to all Agency operations and activities with radioactive sources.

Subprogramme 3.3.2 Regulatory Infrastructure and Transport Safety addresses the increasing demand from Member States for independent peer reviews and advisory missions supported by self-assessments in the area of regulatory infrastructure and transport of radiation sources, which is expected to continue. Recognizing the need to build competence in radiation safety in a sustainable manner, an increasing number of Member States are adopting the IAEA strategic approach to education and training in this area (*Strategic Approach to Education and Training in*

Radiation, Transport and Waste Safety 2011–2020 (Continuation of the Strategic Approach 2001–2010) (2010/Note 44)). In transport safety, the revision of IAEA safety standards SSR-6, SSG-26, SSG-33 and a new Specific Safety Guide on the format and content of package design safety reports for the transport of radioactive material are planned to be published. The revision of TS-G-1.2 will be completed. Specific focus will be placed on the regional approach to improve regulatory oversight capacity, including training, reviewing draft national regulations and the effective formation of transport regulators.

Objectives, Outcomes and Performance Indicators by Programme

Programme 3.3 Radiation and Transport Safety

Objectives:

- *To support Member States in improving radiation safety of people and the environment through the development of safety standards and providing for their application.*
- *To support Member States in establishing the appropriate safety infrastructure through support and implementation of the Code of Conduct on the Safety and Security of Radioactive Sources, and through safety reviews and advisory services.*
- *To support Member States in capacity building through education and training, and in encouraging the exchange of information and experience.*

Outcomes	Performance Indicators
• IAEA contributions to an integrated, comprehensive and consistent set of up to date safety standards in the area of radiation safety available to Member States.	• Percentage of new and revised safety standards and supporting documents in the area of radiation and transport safety against the planned number.
• IAEA contributions to improved radiation safety in Member States.	• Number of States hosting Agency review or appraisal missions. • Percentage of Agency recommendations from safety review services addressed by the Member States.
• IAEA contributions to enhanced competency in Member States in the areas of radiation safety.	• Increase in performance indicators in the Radiation Safety Information Management System (RASIMS) for regulatory infrastructure.

Subprogramme 3.3.1 Radiation Safety and Monitoring

Objectives:

- *To support Member States in reaching the highest level of radiation safety through development of Safety Standards and Guides and providing for their application in all sectors of industry, medicine and other applications, and in enhancing communication on radiation risks.*
- *To ensure a high level of radiation protection for the Agency's own operations and for all operations making use of materials, services, equipment, facilities and information made available by the Agency, including assistance in technical cooperation projects.*

Outcomes	Performance Indicators
• IAEA contributions to strengthening cooperation among relevant international organizations with responsibilities and mandates for radiation safety in order to facilitate implementation of IAEA safety guidance documents in the legislative framework, as well as enhancing communication on radiation risks.	• Number of regular meetings of the Inter-Agency Committee on Radiation Safety (IACRS). • Number of guidance documents that are published (revision of existing documents or development of new documents) to support the implementation of the revised GSR Part 3.
• Establishment, in close cooperation with ILO, of a harmonized framework for the protection of occupationally exposed workers in general and achievement of the highest level of radiation safety of Agency staff in operations with radioactive sources in particular.	• Number of Safety Guides and TECDOCs elaborated in cooperation with ILO in the area of the occupational radiation protection. • Number of accredited methods maintained in the Agency's laboratories.

Outcomes	Performance Indicators
• IAEA contributions to improved awareness of, and recognized need for, good practice in medical radiation protection among health professionals and organizations involved in medical radiation exposures globally, particularly in the area of justification and optimization of exposures in medical applications.	• Number of downloads of IAEA guidance and other information on methods to improve radiation protection of patients, as published on the Radiation Protection of Patients (RPOP) web site.

Projects

Title	Main Planned Outputs
3.3.1.001 Public and environment radiation protection	New and revised safety standards and associated guidance documents, meetings and workshops for Member States to support implementation of the International Basic Safety Standards and cooperation with relevant international organizations on radiation safety issues.
3.3.1.002 Radiation protection of patients	Safety related publications on the radiation protection of patients; reporting systems for radiological procedures and radiotherapy; and a dedicated web site with updated information on dose reduction in medical exposure for health professionals and patients.
3.3.1.003 Occupational radiation protection	Draft and published safety documents; expanded and new radiation protection networks; upgraded and new training packages; reports and self-assessment tools for the Occupational Radiation Protection Appraisal Service (ORPAS); and expansion and utilization of Occupational Radiation Protection Networks (ORPNET).
3.3.1.004 Radiation safety technical services	Provision of radiation safety technical services to meet the needs of each Department to protect staff and external experts in Agency operations and missions. Services encompass individual and workplace accredited monitoring, instrument calibration and emergency services. Develop and share best practices with Member States.

Subprogramme 3.3.2 Regulatory Infrastructure and Transport Safety

Objectives:

— *To support Member States in strengthening their regulatory infrastructure for radiation and transport safety through the development of safety standards and providing for their application.*

— *To support Member States in strengthening their regulatory infrastructure for radiation and transport safety through peer reviews and advisory services.*

— *To support Member States in enhancing their radiation safety capacity building.*

Outcomes	Performance Indicators
• IAEA contributions to an integrated, comprehensive and consistent set of up to date safety standards in the area of transport safety and regulatory infrastructure available to Member States.	• Percentage of new and revised safety standards and supporting documents in this area against the planned number.
• IAEA contributions to improved transport safety and regulatory infrastructure in Member States.	• Percentage of Agency recommendations from safety review services addressed by Member States. • Increase in performance indicators in RASIMS for regulatory infrastructure.
• IAEA contributions to enhanced competency in Member States in the area of radiation safety.	• Increase in performance indicators in RASIMS for education and training in radiation, transport and waste safety.

Projects	
Title	**Main Planned Outputs**
3.3.2.001 Control of radiation sources	Meetings of legal and technical experts on the implementation of the *Code of Conduct on the Safety and Security of Radioactive Sources*; regional workshops on the implementation of the Code; revised safety standards; advisory missions on radiation safety regulatory infrastructure; training courses.
3.3.2.002 Transport safety	A comprehensive set of transport safety standards, TECDOCs and other guidance documentation and training courses; technical meetings and other consultancy meetings supporting their implementation.
3.3.2.003 Technical assistance and information management	Updated radiation safety infrastructure profiles; reports from the Steering Committee on Education and Training in Radiation, Transport and Waste Safety and the postgraduate educational course (PGEC) directors; revised and updated approach to education and training in radiation, transport and waste safety; revised and updated training materials; updated impact analysis of PGEC and train the trainers (TTT) events.

Programme 3.4 Radioactive Waste Management and Environmental Safety

This Programme is to provide support to Member States in establishing a safety framework for the management of radioactive waste and spent fuel as well as in planning and implementing safe decommissioning of nuclear installations and other facilities using radioactive material. The Programme includes the development of relevant IAEA safety standards, assistance to Member States on the use and application of these safety standards, coordination of the Waste Safety Standards Committee (WASSC), and providing the Secretariat for the meetings of the Contracting Parties of the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management.

Lessons learned from reviews, assessment, evaluations: Some Member States are nearing high level waste (HLW) disposal in geologic repositories that involves long storage periods, with useful experiences that can be shared. Member States need plans in place to deal with waste generated in case of an accident. Decommissioning is increasing worldwide as existing facilities close. It is important to provide Member States with guidance on safe practices and lessons learned. The decommissioning of nuclear facilities damaged by severe accidents remains a major challenge. Member States also need assistance in the remediation of legacy sites or advice to avoid the creation of new legacies when embarking on uranium mining.

Specific criteria for prioritization:

1. Support Member States in developing national strategies and routes for disposal of disused sources and radioactive waste.
2. Support Member States in developing plans on the back end of the nuclear fuel cycle and waste disposal as needed.
3. Support Member States interested in uranium mining to prevent future legacies.

Programmatic changes and trends

Subprogramme 3.4.1 Safety of Spent Fuel and Radioactive Waste Management covers projects on predisposal and disposal of spent fuel and radioactive waste. Efforts will continue in the area of disposal of HLW and will address the development and review of safety cases for both operational and post-closure safety of disposal facilities. Several Member States are now nearing HLW or spent fuel disposal in geologic repositories, and there will be an emphasis on leveraging the implementation of safety from those first experiences to the benefit of other Member States.

Subprogramme 3.4.2 Safety of Decommissioning, Remediation and Environmental Releases consists of projects concerning the safety of the interrelated elements of decommissioning, remediation and environmental monitoring, and the management of radioactive releases to the environment, including decommissioning and remediation after a

nuclear accident. Efforts will continue in the development and review of safety standards and guidance for this growing demand. In addition and commensurate with uranium production trends, new or revised recommendations and training materials will be developed to support embarking countries and organizations. Decommissioning is expected to increase worldwide as existing facilities reach their end-of-service or early closure decisions, and it is important to provide Member States with updated guidance on safe practices and to facilitate exchange of information and lessons learned.

Objectives, Outcomes and Performance Indicators by Programme

Programme 3.4 Radioactive Waste Management and Environmental Safety

Objectives:

- *To support Member States in improving the safety of radioactive waste and spent fuel management, including geologic repositories for HLW, decommissioning, remediation and environmental releases, through the development of safety standards and providing for their application.*
- *To support Member States in improving the safety of radioactive waste and spent fuel management, including geologic repositories for HLW, decommissioning, remediation and environmental releases through peer reviews and advisory services.*
- *To support Member States in capacity building through education and training, and encouraging the exchange of information and experience.*

Outcomes	Performance Indicators
• IAEA contributions to an integrated, comprehensive and consistent set of up to date safety standards in the area of safety of spent fuel and radioactive waste management, including predisposal and disposal (near surface and geologic), and decommissioning, remediation and environmental releases available to Member States.	• Percentage of new and revised safety standards and supporting documents in this area against the planned number. • Number of Contracting Parties to the Joint Convention.
• IAEA contributions to improved safety of spent fuel and radioactive waste management, including predisposal, disposal, and decommissioning, remediation and environmental releases in Member States.	• Number of peer review services or other expert mission support with regard to spent fuel and radioactive waste management, including predisposal and disposal as well as decommissioning, remediation, and environmental release are accomplished for organizations, state authorities and/or facilities.
• IAEA contributions to enhanced competency in Member States in the areas of spent fuel and radioactive waste management, including predisposal and disposal (near surface and geologic) as well as decommissioning, remediation and environmental releases.	• Number of Member States participating in Agency training.

Subprogramme 3.4.1 Safety of Spent Fuel and Radioactive Waste Management

Objectives:

- *To support Member States in improving the safety of radioactive waste and spent fuel management through the development of safety standards and providing for their application.*
- *To support Member States in improving the safety of radioactive waste and spent fuel management through peer reviews and advisory services.*
- *To support Member States in capacity building through education and training, and encouraging the exchange of information and experience.*

Outcomes	Performance Indicators
• IAEA contributions to an integrated, comprehensive and consistent set of up to date safety standards in the area of safety of spent fuel and radioactive waste management, including predisposal and disposal (near surface and geologic) available to Member States.	• Percentage of new and revised safety standards and supporting documents in this area against the planned number. • Number of contracting parties to the Joint Convention.

Outcomes	Performance Indicators
• IAEA contributions to improved safety of spent fuel and radioactive waste management, including predisposal and disposal (near surface and geologic) in Member States.	• Number of peer review services or other expert mission support with regard to spent fuel and radioactive waste management, including predisposal and disposal are accomplished for organizations, state authorities and/or facilities.
• IAEA contributions to enhanced competency in Member States in the areas of spent fuel and radioactive waste management, including predisposal and disposal (near surface and geologic).	• Number of Member States participating in Agency training.

Projects

Title	Main Planned Outputs
3.4.1.001 Waste management safety standards and Joint Convention support	Safety standards and supporting documents on the predisposal management and disposal of radioactive waste and spent fuel; Secretariat services to the Joint Convention (including organization of Review Meetings).
3.4.1.002 Application of safety standards and support to intercomparison projects	Coordination of existing and establishment of new projects on the safety of radioactive waste management and peer reviews.

Subprogramme 3.4.2 Safety of Decommissioning, Remediation and Environmental Releases

Objectives:

— *To support Member States in improving the safety of their programmes with regard to decommissioning and remediation, including post-accident situations, and environmental releases, through the development of safety standards and providing for their application.*

— *To support Member States in improving the safety of their programmes with regard to decommissioning and remediation, including post-accident situations, and environmental releases, through peer reviews and advisory services.*

— *To support Member States in capacity building through education and training, and encouraging the exchange of information and experience.*

Outcomes	Performance Indicators
• IAEA contributions to an integrated, comprehensive and consistent set of up to date safety standards in the area of safety of decommissioning, remediation and environmental releases, including post-accident situations available to Member States.	• Percentage against planned new and revised safety standards and supporting documents in this area against the number of planned.
• IAEA contributions to improved safety of decommissioning, remediation and environmental releases, including post-accident situations in Member States standards.	• Number of peer review services or other expert mission support with regard to decommissioning, remediation, and environmental release are accomplished for organizations, state authorities and/or facilities.
• IAEA contributions to enhanced competency in Member States in the areas of decommissioning, remediation and environmental releases, including post-accident situations.	• Number of Member States participating in Agency training.

Projects

Title	Main Planned Outputs
3.4.2.001 Safety for decommissioning and remediation	IAEA safety standards pertaining to decommissioning, remediation and naturally occurring radioactive material (NORM) residue management; supporting documents and training materials to assist Member States with application of these standards; knowledge transfer through safety demonstration projects.

Title	Main Planned Outputs
3.4.2.002 Safety for assessment and management of environmental releases	New and revised safety standards, and new technical documents to assist in elaborating examples for the application of safety standards in practice; assistance in performing assessment of radiological impacts and environmental monitoring to enhance nuclear safety; advice to conventions.

Programme 3.5 Nuclear Security

The risk that nuclear or other radioactive material could be used in malicious acts continues to be a serious threat to international peace and security. Much progress has been made in recent years in addressing nuclear security, including the entry into force of the Amendment to the Convention on Physical Protection of Nuclear Materials in 2016, but more needs to be done. The responsibility for nuclear security within a State rests entirely with that State. At the same time, Member States have consistently recognised the central role of the IAEA in strengthening the nuclear security framework globally and in coordinating international cooperation in nuclear security. The security of nuclear material and associated facilities and activities has always been of the highest priority and a long term imperative. The potential threats involving the malicious use of other radioactive materials and associated facilities and activities remain a serious concern and therefore higher priority continues to be given to improving the security of such materials.

The Programme is designed to assist Member States, upon their request, in meeting the requirements of the legally binding and non-binding international instruments and to establish and maintain effective national nuclear security. The Programme has been developed to respond to lessons learned from the implementation of the General Conference resolutions, and the Nuclear Security Plan (NSP), taking into account feedback from Member States and international forums as well as relevant output from Agency conferences. Greater emphasis is placed on the publication of comprehensive guidance documents in the IAEA as part of the Nuclear Security Series; promotion of their use, as appropriate, including through peer reviews and advisory services; capacity building, including education, training and professional networks and promotion of nuclear security culture; and ensuring coordination and promotion of international cooperation activities in nuclear security, while avoiding duplication and overlap.

Lessons learned from reviews, assessment, evaluations: The Programme builds on the activities set out in the *Nuclear Security Plan 2014–2017* as well as the NSP for 2018–2021 to be presented to the Board of Governors and the General Conference in 2017, the overall priorities remain to develop coordination and priority setting by the Nuclear Security Guidance Committee (NSGC), to release Nuclear Security Series publications and to provide applicable services to promote their use. However, resources from the Regular Budget are insufficient to meet all of the requests for support, and implementation of the Programme will continue to be dependent on Nuclear Security Fund (NSF) contributions and conditions attached to those contributions. Dialogue with Member States and other relevant organizations and initiatives needs to be maintained to increase awareness of the Agency's central role in facilitating the strengthening of global nuclear security.

Specific criteria for prioritization:

1. Completion and maintenance of universally applicable Nuclear Security Series recommendations and guidance, and provision of assessment and evaluation services at the request of Member States.
2. The provision, upon request of assistance in capacity building, human resources development programmes, nuclear security culture and risk reduction activities, inter alia, based on an analysis of needs, including those identified through Integrated Nuclear Security Support Plans (INSSPs).

Programmatic changes and trends

Subprogramme 3.5.1 Information Management is in response to interest among Member States in computer and information security at nuclear power plants and nuclear facilities. Attacks on computer systems have increased worldwide, and there is a need for information sharing meetings, consultancy meetings, technical guidance publications and training for the global community. Agency assistance provided to Member States under INSSPs has increased owing to the greater awareness of Agency nuclear security activities on the part of the international nuclear security community. Detailed programmatic priorities and goals which determine changes and trends under this subprogramme are reported to the Board of Governors through the annual *Nuclear Security Report*.

Subprogramme 3.5.2 Nuclear Security of Materials and Facilities is in response to a further increase in demand anticipated for the development of practical technical security guidance and training on the physical protection of nuclear material and facilities. The contribution of the State system of accounting for and control of nuclear material (SSAC) to preventing loss of control and illicit trafficking and to deterring and detecting the unauthorized removal of nuclear material has been recognized. Nuclear material control and accounting systems at nuclear facilities for security purposes continues to be an important security element. A further increase in Member State requests for advisory services and assessment missions on the physical protection of materials, facilities and activities is also anticipated. Detailed programmatic priorities and goals which determine changes and trends under this subprogramme are reported to the Board of Governors through the annual *Nuclear Security Report*.

Subprogramme 3.5.3 Nuclear Security of Material outside of Regulatory Control will assist States to improve internal coordination between the various State competent authorities dealing with the security of nuclear and other radioactive material out of regulatory control. Detailed programmatic priorities and goals which determine changes and trends under this subprogramme are reported to the Board of Governors through the annual *Nuclear Security Report*.

Subprogramme 3.5.4 Programme Development and International Cooperation aims to continue and further strengthen the process of greater Member State involvement in nuclear security activities through facilitating participation in the development of education and training networks and, in particular, nuclear security publications through membership of the NSGC. Detailed programmatic priorities and goals which determine changes and trends under this subprogramme are reported to the Board of Governors through the annual *Nuclear Security Report*.

Objectives, Outcomes and Performance Indicators by Programme

Programme 3.5 Nuclear Security

Objectives:

- *To contribute to global efforts to achieve effective nuclear security, by establishing comprehensive nuclear security guidance and promoting its use through peer reviews and advisory services and capacity building, including education and training.*
- *To assist in adherence to, and implementation of, relevant international legal instruments, and in strengthening the international cooperation and coordination of assistance in a manner that underpins the use of nuclear energy and applications.*
- *To play the central role and enhance international cooperation in nuclear security, in response to General Conference resolutions and Board of Governors directions.*

Outcomes	Performance Indicators
• IAEA contributions to continued improvement in the security of nuclear material, other radioactive material, associated facilities and transport.	• Number of States that have established or improved national nuclear security measures and systems on the basis of advice from the Agency.
• IAEA contributions to improved capacity among States to implement national nuclear security measures.	• Number of States that requested and receiving Agency assistance identified in the INSSPs, as appropriate.
• Improved global coordination and cooperation in the delivery of support of national efforts to improve nuclear security.	• Number of activities duplicated by other initiatives. • Number of activities carried out in conjunction with the IAEA.

Subprogramme 3.5.1 Information Management

Objectives:

- *To maintain a comprehensive information platform providing a good understanding of nuclear security needs of States globally and supporting implementation of the NSP.*
- *To improve computer security and information security capabilities in States.*
- *To assist States with the timely exchange of authoritative information on incidents involving illicit trafficking and other related unauthorized activities involving nuclear and other radioactive material.*

Outcomes	Performance Indicators
• Maintain and improve the quality and speed of analysis and sharing of nuclear security information through the leveraging of information technology tools and services.	• Increase in use of the Nuclear Security Information Portal (NUSEC) and other Agency nuclear security related sites.
• IAEA contributions to improved information and computer security capabilities at the State and facility levels to support the prevention and detection of, and response to, computer security incidents that have the potential to either directly or indirectly adversely impact nuclear safety and security.	• Number of States requesting assistance and/or participating in IAEA activities to improve computer and information security capabilities.
• Planned and implemented INSSPs.	• Number of INSSPs agreed and implemented by States and agreement by them on correctness and relevance of the information for their support needs. • Number of Nuclear Security Information Management System (NUSIMS) self-assessment questionnaires started.

Projects

Title	Main Planned Outputs
3.5.1.001 Assessing nuclear security needs, priorities and threats	Development and implementation of INSSPs, where appropriate, development of voluntary self-assessment mechanism or tool for States' use.
3.5.1.002 Information sharing on incidents and trafficking	Information sharing, as appropriate, technical meetings, training of appropriate partner professionals to improve the effectiveness of activities implemented by the Agency including the Incident and Trafficking Database (ITDB).
3.5.1.003 Information and computer security, and information technology services	Information and computer security guidance publications; expert meetings; training courses and workshops; technical assistance for States; coordinated research.

Subprogramme 3.5.2 Nuclear Security of Materials and Facilities

Objectives:

- *To establish international guidance and assist States in developing or enhancing, maintaining and, upon request, reviewing effective implementation of the nuclear security framework for nuclear material and other radioactive material, and associated facilities and activities, including transport.*
- *To improve States' institutional, regulatory and technical security and human resource capabilities to protect nuclear material and other radioactive material and associated facilities, including transport.*
- *To reduce the risk of malicious acts involving nuclear material and other radioactive material associated facilities and activities, including transport.*

Outcomes	Performance Indicators
• Increased number of technical guidance publications prepared and used by States in the establishment and maintenance of their national nuclear security regime.	• Number of document preparation profiles approved by the NSGC on nuclear security of materials, facilities and activities. • Number of guidance documents published and used for training events and advisory services.
• IAEA contributions to increased knowledge and capacity building for nuclear security of materials, facilities and activities in States through, inter alia, the development and provision of trainings, experts' advice and peer reviews.	• Number of professionals trained and who are used for effective capacity building in States.
• IAEA contributions to reduced global risk associated with nuclear power and non-nuclear power applications in medicine, agriculture, research, industry and other applications, including transport.	• Number of international peer review, advisory and evaluation missions requested by States and feedback from States on implementation of their recommendations.

Projects	
Title	**Main Planned Outputs**
3.5.2.001 Integrated nuclear security approaches for the nuclear fuel cycle	Comprehensive support including guidance, procedures and methodologies, to assist States, upon request, in meeting their obligations under international instruments and the recommendations on the security of the nuclear material and facilities set out in IAEA Nuclear Security Series No. 13, *Nuclear Security Recommendations on Physical Protection of Nuclear Material and Nuclear Facilities (INFCIRC/225/Revision 5)*.
3.5.2.002 Enhancing nuclear material's security using accounting and control	Comprehensive support including guidance, procedures and methodologies to assist States, upon request, in meeting their obligations under international instruments and the recommendations on nuclear material accounting and control set out in IAEA Nuclear Security Series No. 13.
3.5.2.003 Upgrading security of radioactive material and associated facilities	Guidance approved by the NSGC for States on how to develop, enhance, implement and maintain a nuclear security regime for radioactive material, associated facilities and associated activities; capacity building; provision of peer reviews; upgrades of physical protection systems.
3.5.2.004 Nuclear security in the transport of nuclear and radioactive material	Technical guidance, procedures, methodologies, training and practical assistance, including exercises for security in the transport of nuclear and other radioactive material; and model regulatory frameworks for transport security.

Subprogramme 3.5.3 Nuclear Security of Materials outside of Regulatory Control

Objectives:

- *To assist States in establishing and sustaining an effective institutional infrastructure to strengthen national efforts to protect people, property, the environment and society from the unauthorized use of nuclear and other radioactive material.*
- *To assist States in detecting, locating and interdicting nuclear and other radioactive material out of regulatory control, and in providing an effective response to a nuclear security event.*
- *To assist States, upon request, in strengthening their national framework for managing radiological crime scenes, to collect evidence for use in subsequent legal proceedings, undertaking nuclear forensics examinations to support investigations and to help to determine the origin and history of the material.*

Outcomes	Performance Indicators
• IAEA contributions to increased awareness of the need for an effective institutional infrastructure in a State to ensure national and international obligations are met.	• Number of relevant IAEA Nuclear Security Series publications available in all official Agency languages and used by States. • Number of activities implemented related to institutional infrastructure for managing nuclear and other radioactive material out of regulatory control.
• IAEA contributions to increased probability that any nuclear and other radioactive material out of regulatory control is detected and incorporates appropriate response.	• Number of relevant IAEA Nuclear Security Series publications available in all official Agency languages and used by States. • Number of activities implemented related to detection and response to materials outside of regulatory control.
• IAEA contributions to improved capability of States to conduct investigations involving nuclear and other radioactive material and to determine the point at which such material left regulatory control and address nuclear security vulnerabilities.	• Number of relevant IAEA Nuclear Security Series publications available in all official Agency languages and used by States. • Number of activities implemented related to radiological crime scene management and nuclear forensics.

Projects

Title	Main Planned Outputs
3.5.3.001 Institutional infrastructure for material out of regulatory control	Nuclear security guidance; peer review missions; projects arising from INSSPs; support for States to establish a national nuclear security infrastructure; assistance in capacity building.
3.5.3.002 Nuclear security detection and response architecture	Nuclear Security Series guidance in accordance with roadmap approved by NSGC; missions; projects arising from INSSPs; coordinated research projects (CRPs); technical support to States to establish detection and response measures; assistance in capacity building and installation of radiation detection equipment.
3.5.3.003 Radiological crime scene management and nuclear forensics science	IAEA Nuclear Security Series; nuclear security training programme; assessment missions; assistance to States and international, regional and national organizations to strengthen their capacity; CRPs.

Subprogramme 3.5.4 Programme Development and International Cooperation

Objectives:

— *To ensure that the NSP is implemented in a coordinated manner within the Agency and with other international organizations, initiatives and assistance in order to reduce duplication of effort.*

— *To assist in the development and promotion of nuclear security globally, including the production and relevant use of guidance in the IAEA Nuclear Security Series and promotion of the universality of the Convention on the Physical Protection of Nuclear Material (CPPNM) and its Amendment.*

— *To provide coordinated education and training programmes that meet the requirements of States and to facilitate delivery of those programmes through the International Nuclear Security Education Network (INSEN) and Nuclear Security Support Centre (NSSC) networks and NUSEC.*

Outcomes	Performance Indicators
• IAEA contributions to improved nuclear security through the production of current nuclear security guidance involving all Member States and adherence to the CPPNM and its Amendment.	• Number of States participating in the NSGC. • Number of publications produced in the IAEA Nuclear Security Series. • Number of States adhering to the CPPNM and its Amendment.
• IAEA contributions to strengthening Member States' capacity building through the implementation of nuclear security education and training programmes, available to all States through the INSEN and NSSC networks and NUSEC.	• Number of States using Agency developed education and training courses. • Number of States and institutions participating in INSEN and NSSC networks.
• Coordinated delivery of the Agency programmes with those of other initiatives with a reduction of duplication and overlap.	• Number of events organized by the Agency to which other organizations and donors were invited which addressed coordination of activities.

Projects

Title	Main Planned Outputs
3.5.4.001 International cooperation on nuclear security networks and partnerships	Practical arrangements, contribution agreements, reports to the Policy-Making Organs.
3.5.4.002 Education and training programmes for human resource development	Textbooks and course materials on nuclear security, including for a master's degree; modular training programmes covering all aspects of nuclear security.
3.5.4.003 Coordinating nuclear security guidance and advice services	Nuclear security guidance publications approved by Member States; expert advice to the Director General on the Agency's nuclear security programme and relevant issues.

Major Programme 3 — Nuclear Safety and Security
Summary of Programme Structure and Resources
(excluding Major Capital Investments)

	2018 at 2018 prices		2019 at 2018 prices	
Programme / Subprogramme / Project	**Regular Budget**	**Unfunded**	**Regular Budget**	**Unfunded**
3.0.0.001 Overall management, coordination, communication and common activities	1 048 254	392 674	1 048 330	392 674
3.0.0.002 Capacity building, knowledge networks and partnerships	469 379	1 174 839	469 379	1 174 839
3.0.0.003 Coordination of safety standards and security guidance	288 064	161 206	288 064	161 206
3.0.0.004 Internal control for radiation safety and nuclear security	350 050	-	350 050	-
3.S Corporate shared services	1 758 596	-	1 749 022	-
	3 914 342	**1 728 719**	**3 904 844**	**1 728 719**
3.1.1.001 Member State emergency preparedness	1 277 404	2 268 593	1 277 409	1 577 491
3.1.1.002 International emergency management	207 265	-	206 833	-
3.1.1 National and International Emergency Preparedness	1 484 668	2 268 593	1 484 242	1 577 491
3.1.2.001 Preparedness of Incident and Emergency System (IES)	1 037 033	13 706	1 037 033	-
3.1.2.002 Response and assistance arrangements with Member States and IOs	1 157 732	500 742	1 157 732	550 694
3.1.2.003 Public communication in emergencies	652 230	112 988	651 734	219 911
3.1.2 IAEA IES and Operational Arrangements with Member States and IOs	2 846 995	627 435	2 846 499	770 605
3.1 Incident and Emergency Preparedness and Response	**4 331 663**	**2 896 028**	**4 330 741**	**2 348 097**
3.2.1.001 Regulatory effectiveness and regulatory networking	1 651 024	1 510 917	1 728 964	1 521 479
3.2.1.002 Safety standards and CNS support	1 056 080	539	1 049 825	539
3.2.1.003 Capacity building for installation safety and regulatory functions	284 767	28 091	270 095	86 523
3.2.1 Governmental Regulatory Framework and Safety Infrastructure Development	2 991 871	1 539 547	3 048 884	1 608 542
3.2.2.001 Safety standards for NPP design and safety assessment	1 361 854	300 760	1 306 681	266 967
3.2.2.002 Safety assessment competency building, methods and approaches	891 941	991 695	890 837	1 086 532
3.2.2 Safety Assessment of Nuclear Installations	2 253 795	1 292 455	2 197 519	1 353 499
3.2.3.001 Site evaluation and installation design safety	766 160	121 507	767 828	124 143
3.2.3.002 Site evaluation methods and tools for installation safety assessment	440 264	763 910	438 580	727 112
3.2.3 Safety and Protection Against External Hazards	1 206 424	885 417	1 206 408	851 254
3.2.4.001 Operational safety performance	971 292	1 064 215	971 445	1 108 436
3.2.4.002 Sharing and use of international operating experience	853 065	48 006	853 039	45 797
3.2.4.003 Leadership, management for safety and safety culture in Member States	390 653	51 382	390 589	51 382
3.2.4.004 Safety of long term operation	392 653	640 059	392 252	427 913
3.2.4 Safe Operation of Nuclear Power Plants	2 607 663	1 803 662	2 607 325	1 633 528
3.2.5.001 Safety of research reactors	909 224	42 482	941 710	33 104
3.2.5.002 Safety of fuel cycle facilities	401 020	60 957	368 599	55 090
3.2.5 Safety of Research Reactor and Fuel Cycle Facilities	1 310 243	103 440	1 310 309	88 194
3.2 Safety of Nuclear Installations	**10 369 995**	**5 624 520**	**10 370 445**	**5 535 017**

Major Programme 3 — Nuclear Safety and Security
Summary of Programme Structure and Resources
(excluding Major Capital Investments)

	2018 at 2018 prices		2019 at 2018 prices	
Programme / Subprogramme / Project	**Regular Budget**	**Unfunded**	**Regular Budget**	**Unfunded**
3.3.1.001 Public and environment radiation protection	1 049 133	317 294	1 049 133	483 976
3.3.1.002 Radiation protection of patients	878 946	161 206	878 946	161 206
3.3.1.003 Occupational radiation protection	665 884	233 136	665 884	233 136
3.3.1.004 Radiation safety technical services	1 583 848	495 020	1 583 848	484 234
3.3.1 Radiation Safety and Monitoring	4 177 812	1 206 656	4 177 812	1 362 553
3.3.2.001 Control of radiation sources	1 210 034	920 394	1 210 034	644 390
3.3.2.002 Transport safety	936 066	-	936 066	-
3.3.2.003 Technical assistance and information management	1 085 067	193 673	1 085 067	193 673
3.3.2 Regulatory Infrastructure and Transport Safety	3 231 168	1 114 067	3 231 168	838 063
3.3 Radiation and Transport Safety	**7 408 980**	**2 320 723**	**7 408 980**	**2 200 616**
3.4.1.001 Waste management safety standards and Joint Convention support	1 107 774	236 705	1 107 774	236 705
3.4.1.002 Application of safety standards and support to intercomparison projects	670 579	621 362	670 579	621 362
3.4.1 Safety of Spent Fuel and Radioactive Waste Management	1 778 352	858 067	1 778 352	858 067
3.4.2.001 Safety for decommissioning and remediation	1 127 114	1 692 363	1 127 114	1 643 757
3.4.2.002 Safety for assessment and management of environmental releases	839 242	295 864	839 242	295 864
3.4.2 Safety of Decommissioning, Remediation and Environmental Releases	1 966 356	1 988 227	1 966 356	1 939 621
3.4 Radioactive Waste Management and Environmental Safety	**3 744 708**	**2 846 294**	**3 744 708**	**2 797 688**
3.5.1.001 Assessing nuclear security needs, priorities and threats	631 903	1 168 257	631 903	1 168 257
3.5.1.002 Information sharing on incidents and trafficking	388 267	924 316	388 267	924 316
3.5.1.003 Information and computer security, and information technology services	401 783	2 601 014	401 783	2 269 810
3.5.1 Information Management	1 421 952	4 693 587	1 421 952	4 362 382
3.5.2.001 Integrated nuclear security approaches for the nuclear fuel cycle	709 676	3 342 120	709 676	3 342 120
3.5.2.002 Enhancing nuclear materials security using accounting and control	96 895	603 449	96 895	603 449
3.5.2.003 Upgrading security of radioactive material and associated facilities	434 310	2 102 166	434 310	1 234 496
3.5.2.004 Nuclear security in the transport of nuclear and radioactive material	273 326	1 221 184	273 326	1 221 184
3.5.2 Nuclear Security of Materials and Facilities	1 514 207	7 268 918	1 514 207	6 401 249
3.5.3.001 Institutional infrastructure for material out of regulatory control	612 318	949 060	612 318	933 104
3.5.3.002 Nuclear security detection and response architecture	484 506	3 323 772	484 506	3 187 562
3.5.3.003 Radiological crime scene management and nuclear forensics science	472 557	892 357	472 557	860 444
3.5.3 Nuclear Security of Material outside of Regulatory Control	1 569 382	5 165 190	1 569 382	4 981 110
3.5.4.001 International cooperation on nuclear security networks and partnerships	591 595	1 507 108	591 595	1 467 217
3.5.4.002 Education and training programmes for human resource development	490 020	2 381 405	490 020	2 341 514
3.5.4.003 Coordinating nuclear security guidance and advice services	255 821	315 998	255 821	154 793
3.5.4 Programme Development and International Cooperation	1 337 436	4 204 511	1 337 436	3 963 523
3.5 Nuclear Security	**5 842 977**	**21 332 206**	**5 842 977**	**19 708 265**
Major Programme 3 - Nuclear Safety and Security	**35 612 666**	**36 748 490**	**35 602 695**	**34 318 401**

Major Programme 3 — Nuclear Safety and Security
Activities unfunded in the Regular Budget

Project	Tasks	2018 Unfunded	2019 Unfunded
3.0.0.001 Overall management, coordination, communication and common activities	Programme coordination and nuclear safety strategy	392 674	392 674
3.0.0.002 Capacity building, knowledge networks and partnerships	Capacity building, knowledge management, networks and partnerships	1 174 839	1 174 839
3.0.0.003 Coordination of safety standards and security guidance	Safety standards and security guidance development coordination	161 206	161 206
3.1.1.001 Member State emergency preparedness	Preparation and conduct of EPR missions	2 268 593	1 577 491
	Development of safety standards and technical guidance in EPR		
	Training courses on EPR standards, capacity building activities and development of educational and training networks in EPR		
3.1.2.001 Preparedness of Incident and Emergency System (IES)	Development of on-line training materials	13 706	-
3.1.2.002 Response and assistance arrangements with Member States and IOs	Support of IAEA field team procedures and training; development of multi-component RANET exercises; IT development of field deployable database and data management system for field assistance missions	500 742	550 694
	IT enhancements of IRMIS (public site) and IEC web based assistance and prognosis tools		
	Support IEC preparation and conduct of ConvEx exercises		
3.1.2.003 Public communication in emergencies	Workshops relating to public communication in radiation emergencies	112 988	219 911
	Workshops relating to the International Nuclear and Radiological Event Scale (INES)		
3.2.1.001 Regulatory effectiveness and regulatory networking	Support the application of legal and non-binding instruments in the regulatory bodies	1 511 456	1 522 019
	Enhanced implementation of the Integrated Regulatory Review Services (IRRS) and enhanced assistance of Member States in the implementation of recommendations		
	Enhanced support for the implementation of the nuclear safety infrastructure based on SSG-16 for Member States embarking on a new nuclear power programme		
	Enhanced support for international co-operation, co-ordination and information exchange activities in the regulatory area		
	Enhanced support for overall management and operations		
	Support for the development, review and revision of safety standards and related documents on governmental and regulatory frameworks for nuclear installations		
3.2.1.003 Capacity building for installation safety and regulatory functions	Additional support for the development, delivery and maintenance of regulatory training activities and material based on IAEA safety standards	28 091	86 523
3.2.2.001 Safety standards for NPP design and safety assessment	Support Member States with advice and review services in the implementation of safety assessment and design safety standards	300 760	266 967

Major Programme 3 — Nuclear Safety and Security
Activities unfunded in the Regular Budget

Project	Tasks	2018 Unfunded	2019 Unfunded
3.2.2.002 Safety assessment competency building, methods and approaches	Develop safety assessment knowledge requirements and to provide support in safety assessment competency building	991 695	1 086 532
	Develop safety assessment knowledge requirements on topical issues and to provide support in competency building		
	Update, implementation and deployment of safety assessment competency and capacity building programmes		
3.2.3.001 Site evaluation and installation design safety	Accelerate developing and revising safety standards on site evaluation, external event hazards, design and safety assessment of nuclear installations	121 507	124 143
	Developing methodologies of evaluating external event effects on multi-unit sites, external hazard assessment, event experience databases, information systems, and preparation of supporting documents and training courses		
	SEED review and advisory service missions, and assistance to Member States in the implementation of the recommendations		
	Facilitate planning and implementing the technical activities		
3.2.3.002 Site evaluation methods and tools for installation safety assessment	Develop supporting technical documents on methodology for the risk assessment and reduction of installations against external hazards	763 910	727 112
	Disseminate information relating to safety of nuclear installations in site selection, site evaluation and site related risks to Member States using IAEA safety standards Member States' good practices and lessons learned from recent external natural events		
	Develop methodologies and tools of assessing external event hazards and site characteristics		
	Develop supporting technical documents on design of nuclear installations against external hazards		
3.2.4.001 Operational safety performance	To conduct OSART missions upon Member States request to review their operational safety performance	1 064 215	1 108 436
	To support activities related to the development of IAEA Safety Standards		
	Support international cooperation, coordination and information exchange		
3.2.4.002 Sharing and use of international operating experience	To share Member States' operating experience worldwide	48 006	45 797
	To support Member States by conducting peer review operational safety performance experience reviews missions and other related services		
3.2.4.003 Leadership, management for safety and safety culture in Member States	Develop guidance on the integration of human/technology/organization factors based on IAEA safety standards and guidance documents	51 382	51 382
	Develop safety leadership approaches and measurement for leadership		
3.2.4.004 Safety of long term operation	Fulfil request for SALTO peer review services for Member States	640 059	427 913
	Implement IGALL Phase 4 tasks		
	Development of IAEA safety standards		
	Strengthen international cooperation, coordination and information exchange		

Major Programme 3 — Nuclear Safety and Security
Activities unfunded in the Regular Budget

Project	Tasks	2018 Unfunded	2019 Unfunded
3.2.5.001 Safety of research reactors	Revision of Safety Guides to reflect the recently approved Safety Requirements, and development of supporting technical documents to support applications of these standards	42 482	33 104
	Support Member States capacity building for application of IAEA safety standards, through development of training materials, and development of human resources		
3.2.5.002 Safety of fuel cycle facilities	Development of technical documents to support application of safety standards, including on safety analysis, and use of a graded approach in application of the safety requirements	60 957	55 090
	Support Member State capacity building for effective application of safety standards, through organization of technical meetings and training activities		
	Support capacity building for fuel cycle facilities' safety infrastructure		
3.3.1.001 Public and environment radiation protection	Technical Meetings and workshops to develop safety standards and assist in their application	317 294	483 976
	Managing public exposure due to indoor radon		
3.3.1.002 Radiation protection of patients	General management aspects supporting the implementation of the project on the radiation protection of patients	161 206	161 206
3.3.1.003 Occupational radiation protection	Operation of the Information System on Occupational Exposure	233 136	233 136
3.3.1.004 Radiation safety technical services	Provide emergency monitoring services for IAEA staff at Seibersdorf	495 020	484 234
3.3.2.001 Control of radiation sources	Organize the Code of Conduct open ended meetings to share experience on its implementation by Member States	920 394	644 390
3.3.2.003 Technical assistance and information management	To support workshops for nationally appointed RASIMS coordinators	193 673	193 673
	Maintaining radiation safety profiles in RASIMS for recipient IAEA Member States		
3.4.1.001 Waste management safety standards and Joint Convention support	Development of safety standards for the safe predisposal management of radioactive waste and safe disposal of radioactive waste and spent fuel	236 705	236 705
3.4.1.002 Application of safety standards & support inter-comparison projects	Support to international projects and working groups related to the assistance to Member States in the application of safety standards on disposal of radioactive waste and spent fuel	621 362	621 362
3.4.2.001 Safety for decommissioning and remediation	Support to international projects on decommissioning, as well as remediation of contaminated sites	1 692 363	1 643 757
3.4.2.002 Safety for assessment and management of environmental releases	Support to the International programme on development test and comparison of assessment methodologies	295 864	295 864
3.5.1.001 Assessing nuclear security needs, priorities and threats	Overall management and operations to support the identification of nuclear security needs in States (Integrated Nuclear Security Support Plan)	1 168 257	1 168 257
3.5.1.002 Information sharing on incidents and trafficking	Overall management and support of activities relevant to nuclear security information exchange, incidents and trafficking database (ITDB) and coordination with States	924 316	924 316
3.5.1.003 Information and cyber security, and information technology services	Overall management and operations to support States to implement information and computer security for nuclear security.	2 601 014	2 269 810
	Development of Guidance publications within the Nuclear Security Series in the area of computer security		
	Activities undertaken to support the implementation of the Nuclear Security Plan 2018-2021		
	Coordinated Research Project on Enhancing Computer Security Incident Analysis and Response Planning at Nuclear Facilities		
	NSNS support for the development, maintenance and deployment of NSNS information technology tools		

Major Programme 3 — Nuclear Safety and Security
Activities unfunded in the Regular Budget

Project	Tasks	2018 Unfunded	2019 Unfunded
3.5.2.001 Integrated nuclear security approaches for the nuclear fuel cycle	Overall management and operations in support of nuclear security activities implemented for the nuclear fuel cycle Development of Guidance publications within the Nuclear Security Series in the area of the physical protection of nuclear facilities Activities undertaken to support the implementation of the Nuclear Security Plan 2018-2021 Coordinated Research Project on Nuclear Security for Research Reactors and Associated Facilities Coordinated Research Project on Development of Nuclear Security Culture Enhancement Solutions (NSCES)	3 342 120	3 342 120
3.5.2.002 Enhancing nuclear materials security using accounting and control	Overall management and operations in support of nuclear security activities implemented for enhancing nuclear materials security using accounting and control Development of Guidance Documents within the Nuclear Security Series in the area of the nuclear material accounting and control for nuclear security purposes at facilities Activities undertaken to support the implementation of the Nuclear Security Plan 2018-2021 Coordinated Research Project on Improvements in Preventive and Protective Measures against Insider Threats at Nuclear Facilities	603 449	603 449
3.5.2.003 Upgrading security of radioactive material and associated facilities	Overall management and operations in support of nuclear security activities implemented for the security of radioactive material and associated facilities Development of Guidance publications within the Nuclear Security Series in the area of security of radioactive material and associated facilities Activities undertaken to support the implementation of the Nuclear Security Plan 2018-2021 Coordinated Research Project on improving the security of radioactive material, associated facilities, and associated activities	2 102 166	1 234 496
3.5.2.004 Nuclear security in transportation of nuclear and radioactive material	Overall management and operations in support of activities implemented for the nuclear security of nuclear and radioactvie material in transport Development of Guidance Documents within the Nuclear Security Series in the area of Nuclear security in the transport of nuclear and radioactive material Activities undertaken to support the implementation of the Nuclear Security Plan 2018-2021 Coordinated Research Project on Enhancing Security in Transport of Nuclear and other Radioactive Material	1 221 184	1 221 184
3.5.3.001 Institutional infrastructure for material out of regulatory control	Overall Management and operations in support of activities implemented to assist States in establishing and sustaining effective institutional infrastructure Development of Guidance publications within the Nuclear Security Series for nuclear security infrastructure Activities undertaken to support the implementation of the Nuclear Security Plan 2018-2021	949 060	933 104

Major Programme 3 — Nuclear Safety and Security
Activities unfunded in the Regular Budget

Project	Tasks	2018 Unfunded	2019 Unfunded
3.5.3.002 Nuclear security detection and response architecture	Overall management and operations in support of activities implemented to assist States in detecting of nuclear and other radioactive material and responding to nuclear security events as well as assistance provided for nuclear security at major public events	3 323 772	3 187 562
	Development of Guidance publications within the nuclear security series for nuclear security dtection and response architecture		
	Activities undertaken to support the implementation of the Nuclear Security Plan 2018-2021		
	Coordinated research project on Advancing Radiation Detection Equipment, Calibration and Systems for Nuclear Security		
	Coordinated research project on Systems and Measures to Improve the Assessment of Alarms		
3.5.3.003 Radiological crime scene management and nuclear forensics science	To assist States in managing a radiological crime scene, evidence collection and nuclear forensics examination in supporting law enforcement and nuclear security vulnerability assessments is required to investigate a nuclear security event	892 357	860 444
	Development of Guidance Documents within the Nuclear Security Series for Radiological crime scene management and nuclear forensics science		
	Activities undertaken to support the implementation of the Nuclear Security Plan 2018-2021		
	Coordinated research project on Scientific support to promote innovation in nuclear forensics		
3.5.4.001 International cooperation on nuclear security networks & partnerships	Overall management and operations in support of international cooperation, information exchange and promotion of the international nuclear security framework	1 507 108	1 467 217
	Activities undertaken to support the implementation of the Nuclear Security Plan 2018-2021		
3.5.4.002 Education and training programmes for human resource development	Overall management and operations in support of education and training	2 381 405	2 341 514
	Development of Guidance publications within the Nuclear Security Series for education and training		
	Activities undertaken to support the implementation of the Nuclear Security Plan 2018-2021		
3.5.4.003 Coordinating nuclear security guidance and advice services	Overall Management and operations in support of coordinating nuclear security guidance and advice services	315 998	154 793
	Support of the Director General's Advisory Group and the Nuclear Security Guidance Committee		
	Activities undertaken to support the implementation of the Nuclear Security Plan 2018-2021		
Grand Total		**36 748 490**	**34 318 401**

Major Programme 4
Nuclear Verification

Introduction

Major Programme 4 supports the Agency's statutory mandate to establish and administer safeguards designed to ensure that special fissionable and other materials, services, equipment, facilities and information made available by the Agency, or at its request or under its supervision or control, are not used in such a way as to further any military purpose; and to apply safeguards, at the request of the parties to any bilateral or multilateral arrangement, or at the request of a State to any of that State's activities in the field of atomic energy.

To this end, the Agency concludes safeguards agreements with States, which confer upon the Agency the legal obligation and authority to apply safeguards to nuclear material, facilities and other items subject to safeguards. Under this Major Programme, the Agency carries out verification activities, including the analysis of safeguards relevant information, installation of safeguards instrumentation, in field inspections, and sample analysis required for implementing safeguards. These activities enable the Agency to draw soundly based safeguards conclusions. In addition, the Agency, in accordance with its Statute, assists with other verification tasks, including in connection with nuclear disarmament or arms control agreements as requested by States and approved by the Board of Governors.

For the 2018–2019 period, the main challenges for Major Programme 4 include:

- Increasing safeguards responsibilities as a result of an increasing number of safeguards agreements and additional protocols and growing numbers of nuclear facilities and quantities of nuclear material under safeguards;
- Implementing the necessary verification and monitoring of Iran's nuclear-related commitments as set out in the Joint Comprehensive Plan of Action (JCPOA) in light of United Nations Security Council resolution 2231 (2015);
- Planning for and conducting verification activities at nuclear facilities that are being decommissioned;
- Preparing to safeguard new types of nuclear facilities and more complex or larger scale nuclear facilities;
- Modernizing the technical systems, services and instrumentation that underpin effective and efficient safeguards implementation;
- Ensuring the availability of a safeguards workforce with the necessary skills and expertise, and maintaining critical knowledge;
- Operating in a challenging security environment which may require additional measures to ensure the physical safety of staff operating in the field and to ensure information security.

Objectives:	
— *To 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, in accordance with the Agency's Statute, assist with other verification tasks, including in connection with nuclear disarmament or arms control agreements, as requested by States and approved by the Board of Governors.*	
Outcomes	**Performance Indicators**
• Soundly based safeguards conclusions on States' fulfilment of their safeguards obligations.	• Percentage of States with safeguards agreements in force for which safeguards activities were conducted and safeguards conclusions were drawn through the implementation of established processes and procedures. • Level of Member States' satisfaction with information reported in the Safeguards Implementation Report (SIR).

Outcomes	Performance Indicators
• Timely detection of any diversion of nuclear material from peaceful activities, any misuse of facilities and other items to which safeguards are applied, any withdrawal of nuclear material from safeguarded facilities and detection of any undeclared nuclear material and activities, as applicable.	• Percentage of established safeguards objectives met.
• Capacity to carry out, upon States' requests, verification tasks and other technical assistance.	• Percentage of requests that were successfully carried out.

Projects

Title	Main Planned Outputs
4.0.0.001 Overall management and coordination	Procedures, directives, reporting documents, including the SIR and parts of the Annual Report; country specific safeguards implementation information; action and follow up plans for implementation of management mechanisms and tools; communication plan and dialogue with States on safeguards implementation matters.
4.0.0.002 Quality management	Document management and control system; tools to support quality management systems; training on quality management; knowledge management reports; support for the Internal Quality Audit programme; annual calculation for safeguards cost per State.
4.0.0.003 Resources management	Coordination of planning, monitoring and reporting on results; staffing plans; recruited and designated inspectors; financial reviews; occupational health and safety procedures; staff training on occupational safety and radiation protection; reports on monitoring of safety incidents; office space management.
4.0.0.004 Security	Security procedures; response to physical/information security incidents; security awareness campaigns; training to staff on handling sensitive information; coordination/cooperation with the Agency's Central Security Coordinator/Chief Information Security Officer.

Programme 4.1 Safeguards Implementation

The effective implementation of safeguards requires the Agency to conduct a variety of activities to verify that States are honouring their safeguards obligations. The activities include the development and/or updating of safeguards approaches to be implemented in States and at specific types of facility; the conduct of in field activities in relevant locations in States; the collection, processing and analysis of safeguards relevant information; the provision and maintenance of safeguards equipment; the analysis of nuclear material and environmental samples; the provision of information and communication support; the evaluation of performance; and the training of staff. These activities enable the Agency to establish a complete and comprehensive basis upon which safeguards conclusions can be drawn.

Lessons learned from reviews, assessment, evaluations: The continuous collaborative work of multidisciplinary State Evaluation Groups supported the planning, conducting and evaluation of all safeguards activities for every State with a safeguards agreement in force. The use of tools, such as modern analytical applications, needs to be further enhanced. There is a need to improve the safeguards equipment performance metrics and to take additional measures for standardization of equipment. Enhanced cooperation of the Network of Analytical Laboratories (NWAL) with service providers and shipping companies is needed to decrease the shipment time of samples and to reduce the complexity of shipment exemption limits. It is expected that demands for States outreach will continue to grow. In particular, further efforts need to be focused on the evaluation and improvement of the technical capabilities of State and regional systems regional system of accounting for and control of nuclear material (SSACs/RSACs).

Specific criteria for prioritization:

1. Projects responding directly to the Agency's statutory and legal obligations, and decisions of the Board of Governors and the General Conference. The Agency must conduct these projects and cannot defer their implementation.
2. Projects enhancing the Agency's ability to conduct mandatory activities effectively and efficiently: providing technological, methodological, information management and research infrastructure.
3. Non-mandatory projects carried out at the request of States and subject to decisions of the Board of Governors.

Programmatic changes and trends

Subprogramme 4.1.1 Concepts and Planning: The subprogramme continues to be dedicated to high priority operational support activities critical to ensuring that the Agency's mandatory safeguards obligations can be carried out effectively, efficiently and consistently.

Subprogramme 4.1.2 Safeguards Implementation for States under Responsibility of Division SGOA: There are no substantive programmatic changes in the subprogramme compared to the previous biennium and the resources for the biennium will remain at the level of the previous budget.

Subprogramme 4.1.3 Safeguards Implementation for States under Responsibility of Division SGOB: Verification activities in States under the responsibility of Division SGOB continue to increase and thus result in higher funding needs. Implementation of activities pursuant to the CSA and the AP (provisionally applied) in the Islamic Republic of Iran have been fully incorporated in the Regular Budget under this subprogramme. Safeguards activities in the United States of America remain funded by extrabudgetary funding.

Subprogramme 4.1.4 Safeguards Implementation for States under Responsibility of Division SGOC: There are no substantive programmatic changes in this subprogramme compared to the previous biennium; however, a slight increase in the required funding will be necessary to cater for the expected increase in the workload of the Division. Safeguards activities in the Russian Federation remain funded by extrabudgetary funding.

Subprogramme 4.1.5 Information Analysis: The subprogramme continues to group all projects dedicated to on-going safeguards relevant information collection, advanced technical expert's evaluation, and analysis of all safeguards relevant information required to draw soundly based safeguards conclusions from mandatory verification activities. It also includes an effort in the development of the relevant methodologies, related experts' analytical tools and analytical processes. Reprioritization efforts will lead to a minor decrease in the required funding.

Subprogramme 4.1.6 Provision of Safeguards Instrumentation: The subprogramme addresses core verification activities of the Department. As a result of the increased workload related to the provision and standardization of safeguards equipment and instrumentation, additional funding will be required.

Subprogramme 4.1.7 Analytical Services: The main tasks covered by this subprogramme as provider of analytical services remain unchanged. Reprioritization efforts will lead to a slight decrease in the required funding.

Subprogramme 4.1.8 Effectiveness Evaluation: This subprogramme on effectiveness evaluation will continue to strengthen the independent evaluations it performs on the results from safeguards implementation and evaluation activities conducted by the Department. A strong focus will be maintained to strengthen its capability to monitor, evaluate and report on the performance of the Department in order to support decision making. Reprioritization efforts will lead to a decrease in the required funding.

Subprogramme 4.1.9 Safeguards Information Communication Technology (ICT): This subprogramme includes the set of activities related to Safeguards' centre of competence for the specification, development and maintenance of information and communication technology (ICT) systems and for the management of all Safeguards' ICT infrastructure. The latest technology trends as well as changes in Departmental needs and procedures might impact the IT development, infrastructure and support over the next biennium. However, the subprogramme has taken into consideration the currently known trends, going from security architecture though digitalization to collaborative environments and included them to the best of the abilities. The increase in funding needs reflects the completion of the MOSAIC development and the transition to ICT maintenance and is offset by a corresponding decrease in Subprogramme 4.3.1 Development of Safeguards Information Technology.

Objectives, Outcomes and Performance Indicators by Programme

Programme 4.1 Safeguards Implementation

Objectives:

- *To verify that all nuclear material remains in peaceful activities in States with CSAs.*
- *To verify that nuclear material, facilities and other items to which safeguards are applied pursuant to item specific safeguards agreements based on INFCIRC/66/Rev.2 remain in peaceful activities.*
- *To verify that nuclear material to which safeguards are applied in selected facilities pursuant to voluntary offer agreements (VOAs) remains in peaceful activities unless withdrawn as provided for in the agreements.*
- *To ensure that safeguards are effective and implemented in an efficient manner.*

Outcomes	Performance Indicators
• Timely detection of any diversion of nuclear material from peaceful activities, any misuse of facilities and other items to which safeguards are applied, and detection of any undeclared nuclear material and activities.	• Percentage of anomalies, questions and inconsistencies identified through safeguards activities that were followed up by the Agency.
• Enhanced cooperation in safeguards implementation between State and/or regional authorities and the Agency.	• Percentage of States with timely submission of declarations and nuclear material accounting reports. • Percentage of States reached through Agency training and outreach on safeguards implementation.
• Safeguards implementation that is supported by up to date concepts and approaches, implementation processes and procedures; analytical methodologies, tools and services, and technology.	• Percentage of States for which State-level safeguards approaches (SLAs) were developed/updated, approved and implemented. • Percentage of safeguards activities that utilized advanced tools, methodologies and technologies.

Subprogramme 4.1.1 Concepts and Planning

Objectives:

- *To contribute to setting strategic directions and objectives, prepare for future safeguards relevant challenges and opportunities, and coordinate support from Member States.*
- *To develop safeguards approaches and establish internal procedures and guidance for safeguards implementation at the State level.*
- *To continually improve safeguards processes and effectively maintain elements of the Department's quality management system.*
- *To strengthen safeguards knowledge, skills and abilities within the Department of Safeguards and in States, through training, advisory services, guidance, meetings and dialogue.*

Outcomes	Performance Indicators
• Clearly defined priorities and preparedness for the future, and well-coordinated Member States Support Programme (MSSP) support.	• Percentage of departmental internal planning documents updated in a timely manner in accordance with procedures. • Percentage of all development priorities supported by development and implementation support (D&IS) activities by MSSPs.
• Improved and up to date internal, processes and documentation to support effective, efficient and consistent safeguards implementation.	• Percentage of safeguards implementation processes for which internal procedures and guidance are established and up to date.
• Improved knowledge and skills of Agency staff as well as counterparts in the States to perform and support safeguards implementation.	• Percentage of positive feedback received from supervisors of trained SSAC staff. • Percentage of formalized safeguards training courses carried out, as identified in the Annual Safeguards Training Programme.

Projects

Title	Main Planned Outputs
4.1.1.001 Strategic planning and coordination	Internal strategic plan, Long Term R&D plan, biennial D&IS programme; MSSP coordination technical meetings with, and guidance to, States on safeguards implementation; reports to Policy-Making Organs; Safeguards Symposium; SAGSI reports to the Director General.
4.1.1.002 Safeguards approaches and concepts	Safeguards implementation document reviews; advice to Operations and Technical Divisions on the development of SLAs and subsidiary arrangements; internal procedures and guidance; safeguards approaches for new types of facilities.
4.1.1.003 Process design	Process maps and descriptions, procedures, instructions and records system; cost analyses; root cause analyses of identified conditions.
4.1.1.004 SG staff training and traineeship	Training needs analysis; training curricula; evaluation procedures; about 90 training courses; reports and assessment of training courses; teaching materials and training tools; and traineeship programme for six trainees.
4.1.1.005 Training and assistance to SSAC	Training needs analysis; training curricula; evaluation procedures; about ten conducted training courses; reports and assessment of training courses; and teaching materials and training tools.

Subprogramme 4.1.2 Safeguards Implementation for States under Responsibility of Division SGOA

Objectives:

- *To verify that all nuclear material remains in peaceful activities in States with CSAs in force.*
- *To verify that nuclear material to which safeguards are applied in selected facilities pursuant to VOAs remains in peaceful activities unless withdrawn as provided for in the agreements.*

Outcomes	Performance Indicators
• Verification activities performed in field at the State's site, facility and other locations.	• Percentage of States for which SLAs were developed/updated, approved and implemented. • Percentage of States for which an annual implementation plan was developed and executed.
• Evaluation of all safeguards relevant information for each State.	• Percentage of States with safeguards agreements in force for which all collected safeguards relevant information was processed, evaluated and documented.
• Timely detection of any diversion of nuclear material from peaceful nuclear activities and of any undeclared nuclear material and activities for the State as a whole.	• For States with safeguards agreements in force, percentage of States for which safeguards objectives were attained. • Percentage of States with a CSA and additional protocol in force, for which the broader conclusion was drawn or reaffirmed.

Projects

Title	Main Planned Outputs
4.1.2.001 Verification for States with CSA and AP in force	State evaluation reports; SLAs; annual implementation plans; design information verification (DIV) plans; safeguards approaches and inspection procedures; and statements and documentation on activities, results and conclusions of inspections, Complementary Access (CA) and DIVs.

Title	Main Planned Outputs
4.1.2.002 Verification for States with CSA	State evaluation reports; SLAs; annual implementation plans; DIV plans; safeguards approaches and inspection procedures; and statements and documentation on activities, results and conclusions of inspections and DIVs.
4.1.2.003 Verification for States with VOA	State evaluation reports; annual implementation plans; DIV plans; safeguards approaches and inspection procedures; and statements and documentation on activities, results and conclusions of inspections and DIVs.

Subprogramme 4.1.3 Safeguards Implementation for States under the Responsibility of Division SGOB

Objectives:

- *To verify that nuclear material remains in peaceful activities in States with CSAs in force.*
- *To verify that nuclear material, facilities and other items to which safeguards are applied pursuant to item specific safeguards agreements based on INFCIRC/66/Rev.2 remain in peaceful activities.*
- *To verify that nuclear material to which safeguards are applied in selected facilities pursuant to VOAs remains in peaceful activities unless withdrawn as provided for in the agreements.*

Outcomes	Performance Indicators
• Verification activities performed in field at the State's site, facility and other locations.	• Percentage of States for which SLAs were developed/updated, approved and implemented. • Percentage of States for which an annual implementation plan was developed and executed.
• Evaluation of all safeguards relevant information for each State.	• Percentage of States with safeguards agreements in force for which all collected safeguards relevant information was processed, evaluated and documented.
• Timely detection of any diversion of nuclear material from peaceful nuclear activities and of any undeclared nuclear material and activities for the State as a whole.	• For States with safeguards agreements in force, percentage of States for which safeguards objectives were attained. • Percentage of States with a CSA and additional protocol in force, for which the broader conclusion was drawn or reaffirmed.

Projects

Title	Main Planned Outputs
4.1.3.001 Verification for States with CSA and AP in force	State evaluation reports; SLAs; annual implementation plans; DIV plans; safeguards approaches and inspection procedures; and statements and documentation on activities, results and conclusions of inspections, CAs and DIVs.
4.1.3.002 Verification for States with CSA	State evaluation reports; SLAs; annual implementation plans; DIV plans; safeguards approaches and inspection procedures; and statements and documentation on activities, results and conclusions of inspections and DIVs.
4.1.3.003 Verification for States with INFCIRC/66-type agreement	State evaluation reports; annual implementation plans; safeguards approaches and inspection procedures; and statements and documentation on activities, results and conclusions of inspections.
4.1.3.004 Verification for States with VOA	State evaluation reports; annual implementation plans; DIV plans; safeguards approaches and inspection procedures; and statements and documentation on activities, results and conclusions of inspections, CAs and DIVs.

Title	Main Planned Outputs
4.1.3.005 Verification for Iran (CSA and AP (provisionally applied))	State evaluation report; SLA; annual implementation plan; DIV plans; safeguards approaches and inspection procedures; and statements and documentation on activities, results and conclusions of inspections, CAs and DIVs.

Subprogramme 4.1.4 Safeguards Implementation for States under Responsibility of Division SGOC

Objectives:

— *To verify that all nuclear material remains in peaceful activities in States with CSAs in force.*

— *To verify that nuclear material, to which safeguards are applied in selected facilities pursuant to VOAs, remains in peaceful activities unless withdrawn as provided for in the agreements.*

Outcomes	Performance Indicators
• Verification activities performed in field at the State's site, facility and other locations.	• Percentage of States for which SLAs were developed/updated, approved and implemented. • Percentage of States for which an annual implementation plan was developed and executed.
• Evaluation of all safeguards relevant information for each State.	• Percentage of States with safeguards agreements in force for which all collected safeguards relevant information was processed, evaluated and documented.
• Timely detection of any diversion of nuclear material from peaceful nuclear activities and of any undeclared nuclear material and activities for the State as a whole.	• For States with safeguards agreements in force, percentage of States for which safeguards objectives were attained. • Percentage of States with a CSA and additional protocol in force, for which the broader conclusion was drawn or reaffirmed.

Projects

Title	Main Planned Outputs
4.1.4.001 Verification for States with CSA and AP in force	State evaluation reports; SLAs; annual implementation plans; DIV plans; safeguards approaches and inspection procedures; statements and documentation on activities, results and conclusions of inspections, CAs and DIVs.
4.1.4.002 Verification for States with CSA	State evaluation reports; SLAs; annual implementation plans; DIV plans; safeguards approaches and inspection procedures; statements and documentation on activities, results and conclusions of inspections and DIVs.
4.1.4.003 Verification for States with VOA	State evaluation reports; annual implementation plans; DIV plans; safeguards approaches and inspection procedures; and statements and documentation on activities, results and conclusions of inspections, CAs, as applicable, and DIVs.

Subprogramme 4.1.5 Information Analysis

Objectives:

— *To contribute to drawing soundly based safeguards conclusions through collecting, evaluating, analysing, structuring, securing and disseminating necessary information in a timely manner.*

Outcomes	Performance Indicators
• Enhanced verification effectiveness and soundness of the safeguards conclusions through the provision of relevant information and analytical added value.	• Absence of instances where additional information, that later comes to light, brings into question a previously drawn safeguards conclusion.

Outcomes	Performance Indicators
• Timely availability of information and competence contributing to departmental collaborative processes (State evaluation and in field activities implementation).	• Percentage of information available on time to meet the State evaluation schedules.
• Necessary methodologies, approaches, processes, tools and procedures in place.	• Percentage of processes in place improved yearly through the implementation of methodologies, approaches, tools and procedures.

Projects

Title	Main Planned Outputs
4.1.5.001 Declared information analysis	Comprehensive and up to date State-declared information processed and stored in databases compliant with analytical needs; official statements to States; analytical reports backing verification activities and State evaluation; contribution to SIR; improved methodologies; training support for SSACs.
4.1.5.002 Nuclear fuel cycle information analysis	Evaluation of in field measurement and sample results and estimation of their uncertainties; development of probabilistic verification schemes; documented evaluation methodologies and IT solutions; training and consultancy; extensive contribution to field activities and safeguards implementation.
4.1.5.003 State infrastructure analysis	Analytical reports from commercially available satellite imagery and other sources providing geo-referenced information; analytical reports on advanced fuel cycle issues; contributions to State evaluation and field activities.
4.1.5.004 Information collection and analysis	Analytical reports from open source information and commercially available databases; analytical reports based on information on nuclear procurement activities; contributions to State evaluation and field activities.

Subprogramme 4.1.6 Provision of Safeguards Instrumentation

Objectives:

— *To enable and improve the implementation of safeguards through the provision of appropriate and reliable safeguards instruments with adequate field support.*

— *To enable and maintain a system of asset management and operational equipment tracking compliant with International Public Sector Accounting Standards (IPSAS).*

— *To assure safety in the handling of portable equipment through properly organized equipment flow, contamination checking and decontamination measures.*

Outcomes	Performance Indicators
• Timely availability of appropriate and reliable safeguards instruments for inspections and adequate field support.	• Percentage of inspector equipment requests for portable and resident equipment completed in a timely manner. • Dependability of safeguards instruments measured by the time fraction when instrumentation data are available for analysis.
• IPSAS compliant asset management and real time tracking of equipment.	• Number of negative findings from internal and external auditors constituting significant risk. • Ratio of equipment with lost tracking information compared to the overall equipment pool at IAEA Headquarters and the Safeguards Analytical Laboratories.
• Absence of contaminated equipment items issued for inspection use.	• Number of contaminated items issued to inspectors.

Projects

Title	Main Planned Outputs
4.1.6.001 Portable and resident non-destructive assay equipment	Portable NDA instruments provided to inspectors; transportable attended measurement systems; field support by relevant experts; in-house expertise; measurement results.
4.1.6.002 Unattended safeguards instrumentation	Prepared, installed and tested surveillance and unattended monitoring systems; field support to inspectors; in-house data review and analysis support.
4.1.6.003 Equipment logistics and storage	Received and contamination checked safeguards equipment; stored equipment; delivered inspection items; IPSAS compliant equipment inventory management data and system; equipment performance and reliability data.
4.1.6.004 Systems integration and coordination	Engineering solutions for complex systems; reliably operating remote monitoring infrastructure; hardware/software security and containment verification; up to date procedures and tools; equipment documentation and authorization records.

Subprogramme 4.1.7 Analytical Services

Objectives:

- *To maintain and improve capabilities, capacity and services for destructive analysis and environmental sample analysis in order to strengthen the Agency's verification capabilities.*
- *To strengthen quality assurance and control of nuclear material and environmental sample analyses.*
- *To optimize sample logistics and coordinate NWAL management.*

Outcomes	Performance Indicators
• Accurate and timely analysis of all required nuclear material and environmental samples.	• Number of nuclear material and environmental sample analytical results reported by the NWAL, including the Safeguards Analytical Laboratories. • Percentage of safeguards samples analysed within agreed timeliness goals.

Projects

Title	Main Planned Outputs
4.1.7.001 Analytical services and sample analysis	Nuclear material and environmental sample analytical results; shipment and logistics of samples; NWAL management; stockpile and provision of sampling kits and materials.

Subprogramme 4.1.8 Effectiveness Evaluation

Objectives:

- *To ensure that key safeguards activities are subject to evaluations in order to validate that the results of safeguards activities meet the relevant objectives and support the safeguards conclusions.*
- *To ensure that the performance of the department is monitored, evaluated and reported on, following best practices.*
- *To ensure that the Board of Governors is informed annually on the conclusions drawn from safeguards implementation during the prior year.*

Outcomes	Performance Indicators
• Confirmation that the results of safeguards activities meet the relevant safeguards objectives and support the safeguards conclusions.	• Percentage of States with significant nuclear activities in which the achievement of technical objectives was evaluated per year. • Percentage of States without significant nuclear activities in which the achievement of technical objectives was evaluated per year.
• Submission of a high quality SIR annually to the Board of Governors.	• Number of inaccuracies identified in the SIR.
• Improved monitoring and evaluation of its performance by the Department.	• Percentage of key performance indicators for which data are collected and reported to Department management.

Projects

Title	Main Planned Outputs
4.1.8.001 Safeguards effectiveness evaluation	SIR and reports on results of safeguards implementation and internal dashboard on the performance of the Department.

Subprogramme 4.1.9 Safeguards Information Communication Technology (ICT)

Objectives:

— *To enhance the Safeguards' evolving processes through the development of new software.*
— *To provide reliable and fully available ICT services.*
— *To ensure the security of safeguards information.*

Outcomes	Performance Indicators
• Effective and efficient delivery of ICT projects to address safeguards requirements.	• Satisfaction rate of internal stakeholders of the implemented projects. • Percentage of business processes which integrate data into a single Departmental repository inside the integrated safeguards environment.
• Increased efficiency while providing maintenance and support services for safeguards applications.	• Average response time between change requests or incident reports and solutions.
• Improved information security through implementation of the safeguards information security procedures.	• Percentage of critical security controls with capability levels ranked as high out of the total controls that support Safeguards IT security.

Projects

Title	Main Planned Outputs
4.1.9.001 ICT development	Departmental IT systems implemented (developed in-house or utilizing commercial products) and adequately maintained; software provided to States to support their safeguards reporting responsibilities.
4.1.9.002 ICT infrastructure and support	Help desk, email, file storage, network, database, IT security and applications hosting services; desktop/laptop design services; equipment standards and evaluation and life cycle management; mobile devices management; mobile platform, disaster recovery and next generation security implementation.

Programme 4.2 Other Verification Activities

When requested by States and approved by the Board of Governors, the Agency will respond to requests for additional verification tasks and technical assistance. On 25August 2015, the Board of Governors, inter alia, authorized the Director General to implement the necessary verification and monitoring of Iran's nuclear related commitments as set out in the JCPOA, and report accordingly, for the full duration of those commitments in light of United Nations Security Council resolution 2231 (2015), subject to the availability of funds and consistent with the Agency's standard safeguards practices; and authorized the Agency to consult and exchange information with the Joint Commission, as set out in the Director General's report to the Board (GOV/2015/53 and Corr.1).

The Agency will assist with other verification tasks, in accordance with its Statute, in connection with nuclear disarmament or arms control agreements, as requested by States and approved by the Board of Governors.

Lessons learned from reviews, assessment, evaluations: In a rapidly evolving external environment, the Agency needs to remain ready to implement its mandate, in an effective and agile manner, as requested by States and approved by the Board of Governors, as was demonstrated in the context of the JCPOA. To ensure its readiness to play an essential role in verification activities in the Democratic People's Republic of Korea (DPRK), the Agency needs to continue to review and analyse all relevant information related to the DPRK's nuclear programme.

Specific criteria for prioritization:

1. Projects responding directly to the Agency's statutory and legal obligations, and decisions of the Board of Governors and the General Conference. The Agency must conduct these projects and cannot defer their implementation.
2. Projects enhancing the Agency's ability to conduct mandatory activities effectively and efficiently: providing technological, methodological, information management and research infrastructure.
3. Non-mandatory projects carried out at the request of States and subject to decisions of the Board of Governors.

Programmatic changes and trends

Subprogramme 4.2.1 Other Verification Activities: The verification and monitoring of Iran's nuclear-related commitments as set out in the JCPOA is reflected in this subprogramme. The inspector costs associated with the verification and monitoring of Iran's nuclear related commitments as set out in the JCPOA, are integrated into the Regular Budget on a linear basis (€1.1 million each year) over the two years of the biennium and the remaining needs for verification and monitoring activities in Iran are included as Unfunded in the Regular Budget[1]. The activities related to the Agency's readiness to conduct verification in the DPRK are continuing as in the previous biennium and as approved by the Board of Governors.

Objectives, Outcomes and Performance Indicators by Programme

Programme 4.2 Other Verification Activities	
Objectives:	
— *To assist with other verification tasks, in accordance with the Statute, as requested by States and approved by the Board of Governors.*	
Outcomes	**Performance Indicators**
• Capacity to carry out, upon request, verification tasks.	• Percentage of requests approved by the Board of Governors that were successfully addressed.

[1] *The Agency's Budget Update for 2017* (GC(60)/2).

Subprogramme 4.2.1 Other Verification Activities	
Objectives:	
— *To implement effective verification and monitoring of Iran's nuclear related commitments as set out in the JCPOA.* — *To prepare and be ready to verify that the DPRK is fulfilling its obligations under its NPT Safeguards Agreement (INFCIRC/403), and the abandonment of the nuclear programme of the DPRK in a complete, verifiable and irreversible manner, when requested by the Board of Governors.* — *To follow any evolutions on the disposition of plutonium designated as no longer required for defence purposes, in accordance with verification agreement(s), to be concluded between the Agency and States, when requested by States and as approved by the Board of Governors.*	
Outcomes	**Performance Indicators**
• Verification and monitoring activities performed in relation to Iran's nuclear- related commitments as set out in the JCPOA.	• Timely reports to the Board of Governors and, in parallel, to the United Nations Security Council.
• Maintained readiness and preparedness to implement safeguards under INFCIRC/403 and to conduct other verification activities in the DPRK, as approved by the Board of Governors.	• Timely reports to the Board of Governors and General Conference. • Percentage of required documents and plans in place to allow for verification activities in the DPRK.
• Necessary legal framework, verification approaches and equipment to conduct verification related to specific verification agreement(s), when concluded.	• Percentage of required arrangements, approaches and systems in place to allow for verification related to specific verification agreement(s), when concluded.
Projects	
Title	**Main Planned Outputs**
4.2.1.001 Verification activities in the Democratic People's Republic of Korea	Regular updates provided to the Board of Governors and General Conference; State evaluation report; plans to implement safeguards or other monitoring and/or verification measures under different scenarios.
4.2.1.002 Verification and monitoring of Iran's nuclear related commitments	Regular updates provided to the Board of Governors and, in parallel, to the Security Council.

Programme 4.3 Development

Development activities permit the Agency to optimize the breadth and quality of safeguards relevant information upon which safeguards conclusions are drawn, to anticipate and prepare for future technological requirements, and to improve the overall effectiveness and efficiency of safeguards. This programme includes projects addressing the development of hardware, software and infrastructure required for effective and efficient support for information processing; the evaluation of appropriate inspection strategies, supported by suitable safeguards approaches, methods and verification technologies, as well as the development of instrumentation and communications infrastructure.

Lessons learned from reviews, assessment, evaluations: The Agency must have adequate technologies, methods and capabilities to conduct current and future verification tasks effectively. This requires sufficient financial resources as well as long term research, development and planning. Effective planning and efficient use of resource remains a key success factor for all projects. The close interaction between developers and users has been a key success factor in the MOSAIC project. For J-MOX, the necessary safeguards equipment needs to be developed, tested and installed in order to comply with the construction schedule. In the Encapsulation Plant and Geological Repository project, it will be important to continue a structured and regular exchange of information with the European Commission, Finland and Sweden.

Specific criteria for prioritization:

1. Projects responding directly to the Agency's statutory and legal obligations, and decisions of the Board of Governors and the General Conference. The Agency must conduct these projects and cannot defer their implementation.
2. Projects enhancing the Agency's ability to conduct mandatory activities effectively and efficiently: providing technological, methodological, information management and research infrastructure.
3. Non-mandatory projects carried out at the request of States and subject to decisions of the Board of Governors.

Programmatic changes and trends

Subprogramme 4.3.1 Development of Safeguards Information Technology: The decrease in funding needs reflects the completion of MOSAIC development and the transition to information communication technology maintenance which results in an increase in Subprogramme 4.1.9 Safeguards Information Communication Technology (ICT).

Subprogramme 4.3.2 Development of Safeguards Instrumentation: The instrumentation development subprogramme addresses the sustainability of technical and scientific support to the core verification mission, and is designed to be flexible enough to cope with dynamic changes in the requirements. A slight decrease in the subprogramme reflects the de-prioritization of resources from development to safeguards implementation.

Subprogramme 4.3.3 Special Projects: The funding required for the subprogramme will decrease as a result of the decline in the workload related to the project 4.3.3.003 Develop and implement safeguards approaches for the Chernobyl NPP. The activities related to project 4.3.3.001 Develop and implement a safeguards approach for J-MOX are expected to increase compared to the last biennium.

Objectives, Outcomes and Performance Indicators by Programme

Programme 4.3 Development	
Objectives:	
— *To preserve and further develop the Agency's infrastructure and capabilities to conduct verification tasks.*	
Outcomes	**Performance Indicators**
• Enhanced technical infrastructure and systems that are robust, fit for purpose and secure.	• Timeliness of delivery of the modernized information system to support safeguards implementation processes. • Number of innovative solutions (new and upgraded instruments, technologies and installations) introduced into operational practice.
• Safeguards approaches developed for new facility types in a timely manner and in coordination with the relevant SSACs/RSACs.	• New safeguards approaches ready on time.

Subprogramme 4.3.1 Development of Safeguards Information Technology	
Objectives:	
— *To strengthen the security and integrity of safeguards information assets.* — *To improve the accessibility and availability of information within the Department.* — *To increase the efficiency of IT services within the Agency.*	
Outcomes	**Performance Indicators**
• Improved IT assets security incidents detection capabilities.	• Percentage of critical recommendations identified during the yearly assessments. • Percentage of exceptions from the established standard role based access rules.
• Safeguards relevant information available and accessible from a single information repository.	• Percentage of safeguards relevant information for State evaluation available via the State File.

Outcomes	Performance Indicators
• New and modernized information systems to support safeguards processes.	• Percentage of new and modernized information systems completed in support of safeguards implementation.

Projects

Title	Main Planned Outputs
4.3.1.001 Modernization of Safeguards Information Technology (MOSAIC)	IT tools and applications that increase effectiveness and efficiency of safeguards implementation and information security.

Subprogramme 4.3.2 Development of Safeguards Instrumentation

Objectives:

— *To ensure the availability of effective, efficient and up to date instrumentation for the verification of nuclear material and other items placed under safeguards.*

— *To develop innovative approaches and upgrades in traditional safeguard technologies, and to evaluate the application of new technologies for the detection of undeclared activities.*

— *To ensure synergy between safeguards equipment development and innovations originating from other technical areas.*

Outcomes	Performance Indicators
• Availability of effective, efficient and up to date instrumentation for the verification of nuclear material and other items placed under safeguards, and other instrumentation facilitating inspectors work in the field.	• Number of completed equipment authorization actions. • Number of instruments made available to Agency inspectors.
• Identification and evaluation, including testing and specifications analysis, of technologies potentially addressing gaps in the technologies used in safeguards implementation.	• Number of new types of technologies, selected for evaluation and meeting end-user requirements.

Projects

Title	Main Planned Outputs
4.3.2.001 Development of equipment components and stand-alone instruments	New and upgraded instruments and components available; vulnerability assessment report; test reports for instruments and components; proposals for instrument/components development.
4.3.2.002 Development of instrumentation systems and methodology	Introduction of new and improved methods and their realization in new safeguards equipment systems available for use by Agency inspectors.

Subprogramme 4.3.3 Special Projects

Objectives:

— *To ensure the timely implementation of effective and efficient safeguards approaches requiring significant capital investments for special projects in Member States.*

Outcomes	Performance Indicators
• Effective and efficient safeguards approaches and verification available and implemented for all special projects in States' facilities.	• Percentage of verification equipment, software and systems and associated information made available in accordance with planned schedules.

Projects

Title	Main Planned Outputs
4.3.3.001 Develop and implement a safeguards approach for J-MOX	Project plan and schedule updated in line with construction plan; development of safeguards approach and related equipment and documentation as required.
4.3.3.003 Develop and implement safeguards approaches for the Chernobyl NPP	Safeguards approaches, equipment requirements defined; installed and tested equipment for verification of the new safe confinement (shelter) and transfer of irradiated fuel to dry storage.

Major Programme 4 — Nuclear Verification
Summary of Programme Structure and Resources
(excluding Major Capital Investments)

	2018 at 2018 prices		2019 at 2018 prices	
Programme / Subprogramme / Project	Regular Budget	Unfunded	Regular Budget	Unfunded
4.0.0.001 Overall management and coordination	2 122 464	-	2 122 523	-
4.0.0.002 Quality management	795 398	72 399	843 114	36 671
4.0.0.003 Resources management	1 273 047	-	1 273 083	-
4.0.0.004 Security	524 815	-	524 829	-
4.S Corporate shared services	9 585 803	-	9 583 265	-
	14 301 527	**72 399**	**14 346 815**	**36 671**
4.1.1.001 Strategic planning and coordination	1 628 789	1 331 964	1 597 912	711 690
4.1.1.002 Safeguards approaches and concepts	2 392 395	666 865	2 411 609	295 655
4.1.1.003 Process design	912 298	10 786	912 324	10 786
4.1.1.004 SG staff training and traineeship	2 210 676	494 353	2 152 530	301 380
4.1.1.005 Training and assistance to SSAC	585 164	885 556	607 161	861 955
4.1.1 Concepts and Planning	7 729 323	3 389 524	7 681 535	2 181 467
4.1.2.001 Verification for States with CSA and AP in force	15 530 095	-	15 530 531	-
4.1.2.002 Verification for States with CSA	367 223	-	367 234	-
4.1.2.003 Verification for States with VOA	450 267	-	450 280	-
4.1.2 Safeguards Implementation for States under Responsibility of Division SGOA	16 347 585	-	16 348 044	-
4.1.3.001 Verification for States with CSA and AP in force	8 057 911	-	8 058 137	-
4.1.3.002 Verification for States with CSA	5 317 589	-	5 317 738	-
4.1.3.003 Verification for States with INFCIRC/66-type agreement	2 819 447	-	2 819 527	-
4.1.3.004 Verification for States with VOA	(0)	325 644	(0)	325 644
4.1.3.005 Verification for Iran (CSA and AP (provisionally applied))	8 514 757	-	8 514 996	-
4.1.3 Safeguards Implementation for States under Responsibility of Division SGOB	24 709 704	325 644	24 710 398	325 644
4.1.4.001 Verification for States with CSA and AP in force	15 490 741	-	15 491 176	-
4.1.4.002 Verification for States with CSA	339 009	-	339 019	-
4.1.4.003 Verification for States with VOA	1 030 645	210 171	1 030 674	210 171
4.1.4 Safeguards Implementation for States under Responsibility of Division SGOC	16 860 396	210 171	16 860 869	210 171

Major Programme 4 — Nuclear Verification
Summary of Programme Structure and Resources
(excluding Major Capital Investments)

	2018 at 2018 prices		2019 at 2018 prices	
Programme / Subprogramme / Project	**Regular Budget**	**Unfunded**	**Regular Budget**	**Unfunded**
4.1.5.001 Declared information analysis	2 409 173	753 114	2 409 240	753 114
4.1.5.002 Nuclear fuel cycle information analysis	2 997 280	1 181 775	2 997 364	1 181 775
4.1.5.003 State infrastructure analysis	2 953 095	753 664	2 953 177	753 664
4.1.5.004 Information collection and analysis	3 789 855	1 468 731	3 789 962	1 468 731
4.1.5 Information Analysis	12 149 403	4 157 284	12 149 744	4 157 284
4.1.6.001 Portable and resistant non-destructive assay equipment	4 187 209	1 817 486	4 187 326	1 817 486
4.1.6.002 Unattended safeguards instrumentation	6 684 245	810 081	6 684 432	810 081
4.1.6.003 Equipment logistics and storage	3 095 626	138 596	3 095 713	138 596
4.1.6.004 Systems integration and coordination	4 250 630	953 363	4 250 750	953 363
4.1.6 Provision of Safeguards Instrumentation	18 217 710	3 719 525	18 218 221	3 719 525
4.1.7.001 Analytical services and sample analysis	10 630 905	629 369	10 631 203	970 704
4.1.7 Analytical Services	10 630 905	629 369	10 631 203	970 704
4.1.8.001 Safeguards effectiveness evaluation	1 401 809	-	1 401 849	-
4.1.8 Effectiveness Evaluation	1 401 809	-	1 401 849	-
4.1.9.001 ICT development	5 644 565	1 977 136	6 814 828	1 977 136
4.1.9.002 ICT infrastructure and support	7 390 808	3 166 830	7 698 993	3 166 830
4.1.9 Safeguards Information Communication Technology (ICT)	13 035 373	5 143 966	14 513 821	5 143 966
4.1 Safeguards Implementation	**121 082 208**	**17 575 483**	**122 515 684**	**16 708 761**
4.2.1.001 Verification activities in the Democratic People's Republic of Korea	639 765	-	639 783	-
4.2.1.002 Verification and monitoring of Iran's nuclear related commitments	1 099 865	5 103 215	2 150 780	4 048 598
4.2.1 Other Verification Activities	1 739 630	5 103 215	2 790 563	4 048 598
4.2 Other Verification Activities	**1 739 630**	**5 103 215**	**2 790 563**	**4 048 598**
4.3.1.001 Modernization of Safeguards Information Technology (MOSAIC)	1 482 762	-	-	-
4.3.1 Development of Safeguards Information Technology.	1 482 762	-	-	-
4.3.2.001 Development of equipment components and stand-alone instruments	1 456 578	829 486	1 456 619	829 486
4.3.2.002 Development of instrumentation systems and methodology	1 193 143	237 529	1 193 176	237 529
4.3.2 Development of Safeguards Instrumentation	2 649 721	1 067 014	2 649 795	1 067 014
4.3.3.001 Develop and implement a safeguards approach for J-MOX	558 590	-	558 606	-
4.3.3.003 Develop and implement safeguards approaches for the Chernobyl NPP	146 490	-	146 494	-
4.3.3 Special Projects	705 080	-	705 100	-
4.3 Development	**4 837 563**	**1 067 014**	**3 354 895**	**1 067 014**
Major Programme 4 - Nuclear Verification	**141 960 927**	**23 818 112**	**143 007 957**	**21 861 045**

Major Programme 4 — Nuclear Verification
Activities unfunded in the Regular Budget

Project	Tasks	2018 Unfunded	2019 Unfunded
4.0.0.002 Quality management	Document management	72 399	36 671
	Safeguards cost model		
	Knowledge management		
	Quality management		
	Internal quality audit support		
4.1.1.001 Strategic planning and coordination	Strategic planning	1 331 964	711 690
	Member State support programme coordination		
	Stakeholder engagement		
4.1.1.002 Safeguards approaches and concepts	Safeguards approaches	666 865	295 655
	Safeguards concepts		
4.1.1.003 Process design	Process management	10 786	10 786
4.1.1.004 SG staff training and traineeship	Training implementation	494 353	301 380
	Safeguards traineeship programme		
	Development and evaluation of safeguards training courses		
4.1.1.005 Training and assistance to SSAC	SSAC training	885 556	861 955
	ISSAS missions		
	Reference documentation for SSAC		
4.1.3.004 Verification for States with VOA	Verification in States with voluntary offer agreements	325 644	325 644
4.1.4.003 Verification for States with VOA	Verification in States with voluntary offer agreements	210 171	210 171
4.1.5.001 Declared information analysis	Nuclear material accounting information	753 114	753 114
	Declared information analysis		

Major Programme 4 — Nuclear Verification
Activities unfunded in the Regular Budget

Project	Tasks	2018 Unfunded	2019 Unfunded
4.1.5.002 Nuclear fuel cycle information analysis	Data evaluation	1 181 775	1 181 775
	Research and development activities and methodology		
	Support tasks		
4.1.5.003 State infrastructure analysis	Imagery analysis	753 664	753 664
	Technology assessments		
	Research, development, methodology and integration activities		
4.1.5.004 Information collection and analysis	Information analysis and support to the departmental State evaluation process	1 468 731	1 468 731
	Implementation and management of the procurement outreach programme		
	Evaluation of technical assistance projects for safeguards relevance		
	Research and development activities and methodology		
4.1.6.001 Portable and resistant non-destructive assay equipment	Expert support in the area of non-destructive assay activities	1 817 486	1 817 486
	Provision and maintenance of portable and resident non-destructive assays		
4.1.6.002 Unattended safeguards instrumentation	Provision and maintenance of surveillance instrumentation	810 081	810 081
	Provision of unattended monitoring systems		
4.1.6.003 Equipment logistics and storage	Safeguards asset management	138 596	138 596
	Handling and storage		
	Common operational costs		
4.1.6.004 Systems integration and coordination	Provide and maintain seals and containment equipment	953 363	953 363
	Provide and maintain remote monitoring instrumentation		
	Develop safeguards technical and scientific services project engineering		
4.1.7.001 Analytical services and sample analysis	Management of the provision of analytical services	629 369	970 704
	Environmental sample analysis		
	Nuclear material sample analysis		
	Coordinate and support the provision of analytical services		

Major Programme 4 — Nuclear Verification
Activities unfunded in the Regular Budget

Project	Tasks	2018 Unfunded	2019 Unfunded
4.1.9.001 ICT development	ICT development	1 977 136	1 977 136
	ICT design and management		
4.1.9.002 ICT infrastructure and support	ICT operations	3 166 830	3 166 830
	ICT user support		
4.2.1.002 Verification and monitoring of Iran's nuclear related commitments	Nuclear related commitments	5 103 215	4 048 598
	Nuclear related commitments - inspector costs for 2018		
4.3.2.001 Development of equipment components and stand-alone instruments	Coordination	829 486	829 486
	Portable and resident non-destructive assay instruments/components development		
	Development of unattended monitoring hardware		
	Development of surveillance instruments/components		
	Development of sealing and containment instruments/components		
4.3.2.002 Development of instrumentation systems and methodology	Development of unattended instrumentation systems	237 529	237 529
	Development of integrated safeguards instrumentation systems		
	Technological foresight and evaluation of innovations		
	Quality management in development activities		
	Development of remote data transmission infrastructure		
	Testing and evaluation of nuclear security instruments and methods		
Grand Total		**23 818 112**	**21 861 045**

Major Programme 5
Policy, Management and Administration Services

Introduction

Under the leadership, direction and authority of the Director General, the Agency's programmes seek to achieve the goals and objectives of its Member States. This requires effective coordination to ensure a one house approach, particularly with respect to: overall directions and priorities; interactions with Member States; development and implementation of programmes; results based management including performance assessment and risk management; partnerships and resource mobilization; and the management of information within the Secretariat, between the Secretariat and Member States, and for the benefit of the general public and the media.

In addition, a wide range of administrative and legal services will continue to be provided to support Agency programmes in efficiently and effectively fulfilling the its mandate. It should be noted that approximately 25% of the budget for Major Programme 5 is related to the cost of buildings management and the common security services of the Vienna International Centre (VIC). Major Programme 5 coordinates security efforts through a centralized security coordination function for the Agency, including integrated management of facilities and site security of the Agency laboratories at Seibersdorf.

The need to enhance the Agency's information security infrastructure, processes and capabilities to address associated severe and escalating threats will continue to grow, in particular to ensure the security of information with which the Agency is entrusted.

The implementation of the Agency-wide Information System for Programme Support (AIPS) realized streamlining of administrative services in particular in the area of financial transactions, which led to restructuring of the Division of Budget and Finance with associated savings in the 2018–2019 budget. With the completion of the AIPS project in 2017, its user services will be transferred to Subprogramme 5.0.5 Information Communication Technology.

Continued effort for efficiency and rationalization of work, as well as the effort for reducing printed material, has led to savings in the area of Conference and Document Services.

In the area of human resources, necessary adjustments have been incorporated in the Programme and Budget 2018–2019 to reflect the changes arising from the United Nations General Assembly's decisions regarding the compensation package and conditions of employment of staff in the Professional and higher categories.

The oversight activities of the Agency will continue to strengthen accountability, efficiency and effectiveness through audits, evaluations, investigations and the provision of advisory support to senior management and Member States. This will be achieved through the continued activities of the Office of Internal Oversight Services and the Secretariat's support for the External Auditors.

In line with good practice, to strengthen awareness of ethics and to ensure the highest standards of integrity of staff, an independent ethics function reporting directly to the Director General will be established.

Objectives:	
— *To continuously improve the one house and results based management approach to ensure the relevance, effectiveness and efficiency of all Agency programmes and the use of resources.* — *To improve and enhance understanding of the work of the Agency and to ensure timely access by stakeholders to relevant scientific and technical information.*	
Outcomes	**Performance Indicators**
• Planning, formulation, implementation, assessment and evaluation of the Agency's programme in a fully coordinated manner.	• Absence of duplication in the Agency's programme.
• Timely and appropriate administrative and legal services provided in relation to the scientific and technical programmes of the Agency.	• Degree of satisfaction regarding the efficiency of administrative and legal services.
• Efficient and effective information support services and communications strategies.	• Ease of access to Agency information by the Secretariat, Member States, the media and the general public.

Programmatic changes and trends

Subprogramme 5.0.1 Executive Leadership and Policy: The priority remains coordinated planning to ensure that all activities are undertaken within the Agency's statutory mandate and in line with the guidance by Policy-Making Organs. The coordination activities have been strengthened to continue to ensure timely and effective implementation of the Agency's programmes and delivery of concrete results. Given continued resource constraints, implementation of all priority areas remains a challenge. The practice to continually improve efficiency has been embedded in the Agency's Programme and Budget planning process. Further strengthening of the results based management (RBM) approach across the Agency remains the priority in programme planning and implementation. The Agency's risk management system continues to ensure consistent identification, consideration and mitigation of risks in decision making. An independent ethics function reporting directly to the Director General will be established.

Subprogramme 5.0.2 Legal Services: The overall workload in the Office of Legal Affairs (OLA) remains high for support across the Agency, in particular as regards support to Member States for assistance in the preparation of national legislation and the implementation of international agreements. Support to management also continues to be high. Substantial work continues in support of Agency safeguards and verification and nuclear safety and security. These programmatic needs are met through efficiencies gained through decentralization of clearances based on agreed templates and parameters in regard to host state agreements and procurement terms and conditions, as well as through staffing stabilized during the biennium 2016–2017.

Subprogramme 5.0.3 Oversight Services: The Agency focuses on results, efficiency, effectiveness, quality, accountability and risk management. The increased emphasis of Member States on accountability and transparency means that the Agency's oversight services will continue to strengthen its activities.

Subprogramme 5.0.4 Public Information and Communications: The Agency is widely acknowledged as the main global source of authoritative information on nuclear related issues. The Office of Public Information and Communication (OPIC) will continue to promote the Agency's activities and achievements, using traditional communication channels (web, relations with the media) as well as social media. Particular attention will be placed on providing scientific information using plain language and modern visual materials. OPIC will also further increase and diversify its production of videos. The Agency plans to increase its communication output in all official United Nations languages.

Subprogramme 5.0.5 Information Communication Technology: With the completion of the Agency's Enterprise Resource Planning project (AIPS) in 2017, its maintenance and support functions are integrated into the regular programme structure. The Agency will focus on delivering robust and secure technology solutions that improve collaboration and the management and sharing of information. Use of cloud services will be expanded for efficient and effective delivery of IT services when appropriate. The number and sophistication of IT and information security threats to the Agency's IT environment is expected to continue to escalate; as a result, IT and information security will remain at the forefront of all IT related initiatives, in particular to ensure the security of information with which the Agency is entrusted.

Subprogramme 5.0.6 Financial Management and Services: Since its adoption of the International Public Sector Accounting Standards (IPSAS) in 2011, the Agency has been implementing changes to the continuously evolving IPSAS as required. Upon completion of the implementation of AIPS in 2017, the Agency will focus in 2018–2019 on

leveraging further efficiency gains on its financial services driven by AIPS and reinforcing its overall internal control environment, especially through the implementation of an accountability framework.

Subprogramme 5.0.7 Human Resources Management: Upon completion of the restructuring of the Division of Human Resources by 2018–2019, the value of HR services will be increased through partnering closely with managers, improving professional expertise and operational excellence. Continuous HR process improvements, revision/development of Staff Regulations and Staff Rules, as well as standard operating procedures and targeted communication, will be a priority.

Subprogramme 5.0.8 General Services: General Services will continue to provide effective and efficient services to ensure the uninterrupted provision and delivery of general administrative support to the Agency programmes. Analyses will be undertaken regarding future efficiency gains upon stabilization of the AIPS travel solution. Priority will also be given to updating Agency procedures on document retention, retrieval and archival practices. A feasibility study for a modern Agency archiving and document retention centre will be undertaken. Seibersdorf Facilities Management will be focused on laboratories services based on the comprehensive administration services of the campus, covering security, consolidation of the site-wide engineering and infrastructure functions.

Subprogramme 5.0.9 Conference, Languages and Publishing Services: The strengthened application of information technologies in tasks related to conference, translation and publishing services continues to be a key factor. This includes greater use of e-publishing and electronic dissemination of conference materials as well as improved internal processes and electronic workflows. The focus will be on improving the timeliness, quality and consistency of documentation and correspondence submitted to Member States. The outsourcing of appropriate jobs in the publishing and translation area will continue.

Subprogramme 5.0.10 Procurement Services: Innovations include: reduced transactional costs for low value procurements; reduced risk for critical procurements through considered planning and risk reduction measures by Agency-wide procurement teams; and best value for money improvements as measured by the performance indicators in significant procurement projects.

Objectives, Outcomes and Performance Indicators by Subprogramme

<table>
<tr><th colspan="2">Subprogramme 5.0.1 Executive Leadership and Policy</th></tr>
<tr><td colspan="2">Objectives:</td></tr>
<tr><td colspan="2">— To provide leadership and coordination for Agency activities at the executive level and achieving an integrated and a results based management approach.</td></tr>
<tr><th>Outcomes</th><th>Performance Indicators</th></tr>
<tr><td>• Effective, efficient and transparent execution of Agency programmes and activities relevant to Member States.</td><td>• Satisfaction of Member States with the efficiency, effectiveness and transparency of the programme delivered.</td></tr>
<tr><td colspan="2">Projects</td></tr>
<tr><th>Title</th><th>Main Planned Outputs</th></tr>
<tr><td>5.0.1.001 Executive leadership and coordination</td><td>Direction and leadership; coordination of Secretariat activities and liaison with Member States and inter- and non-governmental organizations.</td></tr>
<tr><td>5.0.1.002 Policy-Making Organs</td><td>Meetings of Policy-Making Organs (PMOs) and subsidiary bodies; assistance to Presiding Officers; documents for PMO meetings; assistance to Member States on PMO issues; coordination with in-house Departments; compilation of PMO decisions/resolutions for publication; and communication of documents (GovAtom and General Conference document website).</td></tr>
</table>

Title	Main Planned Outputs
5.0.1.003 General coordination and management	Providing overarching direction for support services and related internal communication; lead optimization of operational efficiency; liaison with United Nations organizations and the Host Government; coordination of programme and budget; reviews of security and coordination with other VIC based organizations.

Subprogramme 5.0.2 Legal Services

Objectives:

— *To provide the highest standard of legal services to the Director General, Secretariat, Policy-Making Organs and Member States in the development and implementation of Agency activities.*

Outcomes	Performance Indicators
• The highest standard of legal services provided to the Director General, Secretariat, Policy-Making Organs and Member States in the development and implementation of Agency activities.	• Percentage of requests for legal services addressed over total number of requests received. • Percentage of positive feedback from clients over total amount of feedback received.

Projects

Title	Main Planned Outputs
5.0.2.001 Legal services	Legal services to the Director General, Secretariat, Policy-Making Organs and Member States in the development and implementation of Agency activities.

Subprogramme 5.0.3 Oversight Services

Objectives:

— *To provide independent and objective assurances to the Director General, Senior Management and other stakeholders that the Agency activities are carried out efficiently, effectively and in compliance with the Regulations and Rules, policies and procedures.*

Outcomes	Performance Indicators
• Fulfilment of the maximum number of assignments within the annual work plan.	• Percentage of finalized assignments within the work plan cycle, i.e. final reports including the Summary of Recommendations being sent to the client.
• Assessment of stakeholders on the quality and utility of OIOS results.	• Responses to Customer Satisfaction Survey Questionnaire in terms of quality and utility of OIOS annual assignments (the percentage of obtaining at least a 'satisfactory' rating).

Projects

Title	Main Planned Outputs
5.0.3.001 Oversight services	High quality reports on the efficiency, effectiveness and compliance of the work of the Agency as defined in the approved work plan of OIOS.

Subprogramme 5.0.4 Public Information and Communications

Objectives:

— *To promote clear public understanding, positive public engagement and accurate media reporting of nuclear issues and the Agency's work, including the role of the Director General, to enhance public and Member State support.*

Outcomes	Performance Indicators
• The Agency's work is positively recognized and acknowledged by the media and the public.	• Number of media interviews (with the Director General and others), news conferences, briefings, written replies and information visits provided to the media and number of video and audio files produced and related downloads by broadcasters. • Size of online audience: number of users reached via the web site and social media channels, including video and audio views by end-users.

Projects

Title	Main Planned Outputs
5.0.4.001 Public information and communications	Enhanced public understanding of the benefits of the Agency's work; and stronger public support for the Agency's work and for its mandate.

Subprogramme 5.0.5 Information Communication Technology

Objectives:

— *To provide a secure information technology (IT) environment and solutions that enables the efficient and effective delivery of the Agency's programme.*

Outcomes	Performance Indicators
• IT services and infrastructure are delivered securely and optimized to meet Agency programmatic requirements and those of the Member States.	• Percentage of Agency staff expressing satisfaction with IT services. • Availability — defined as a percentage of uptime per month outside scheduled maintenance windows — of critical IT applications and infrastructure services.

Projects

Title	Main Planned Outputs
5.0.5.001 Information communication technology	IT end-user services; IT infrastructure services; IT solutions; IT security; IT programme management; IT processes and procedures.

Subprogramme 5.0.6 Financial Management and Services

Objectives:

— *To ensure the continued confidence of Member States in the financial management of the Agency, and to deliver relevant services efficiently and effectively in support of all Agency programmes.*

Outcomes	Performance Indicators
• Sound and timely financial planning and budgeting, accurate and reliable financial reporting.	• Number of budget and financial documents that are issued in time for Board of Governors/General Conference deadlines. • Timely implementation of identified improvements to processes and systems that support financial practices and reporting.
• Efficient financial administration of the Agency.	• Cost of financial services over total expenditure. • Timeliness and accuracy in processing financial transactions.
• External Auditor endorsement of the Agency's financial statements.	• Unqualified opinion of the External Auditor.

Projects

Title	Main Planned Outputs
5.0.6.001 Financial management and services	The Agency's programme and budget; the Agency's financial statements; reports to governing bodies and donors; effective management of funds entrusted by Member States; and timely payments to all vendors and staff.

Subprogramme 5.0.7 Human Resources Management

Objectives:

— *To provide modern, strategic, customer focused and solution oriented Human Resources Management functions with operational excellence and higher professional expertise.*

— *To optimize and promote health and well-being of staff.*

Outcomes	Performance Indicators
• Improved HR functions with stronger client orientation and efficient workflows.	• Workplans defined for all HR areas (Business Partners, HR Specialists and Operational Excellence), including the introduction of service level agreements.
• Achievement of efficiency gains and higher productivity through continuous improvement of HR processes.	• Number of streamlined/enhanced HR processes fully operationalized. • Number of newly developed and/or revised documents on HR procedures.
• Improved occupational health management.	• Number of medical evaluations completed within 48 hours; number of surveillance assessments for occupationally exposed workers completed within 48 hours. • Number of health hazards, as well as risks identified in the working population.

Projects

Title	Main Planned Outputs
5.0.7.001 HR advisory and administration services	Organizational development, workforce planning, contract administration, talent management; service level agreements; documents on HR procedures. Medical evaluations, surveillance assessments and statistics on health.

Subprogramme 5.0.8 General Services

Objectives:

— *To ensure the provision of facilities engineering solutions at headquarters and comprehensive facilities administration at the IAEA Seibersdorf campus.*
— *To provide state of the art document retention, retrieval, and archival services.*
— *To coordinate and manage travel, transport, relocation services and official status administration.*

Outcomes	Performance Indicators
• Highest quality and effective customer service in the provision and delivery of general support and administrative services.	• Percentage of customers satisfied with the quality of general support services provided.
• Delivery of support service in a coordinated, efficient and timely manner.	• Number of service requests completed on time.

Projects

Title	Main Planned Outputs
5.0.8.001 General Services management	Efficient and effective general administrative and support services.

Subprogramme 5.0.9 Conference, Languages and Publishing Services

Objectives:

— *To enable effective exchange and dissemination of information relevant to the Agency's work and mandate between the Secretariat and Member States by organizing meetings and conferences, issuing documents in the six official languages of the Agency, and preparing and distributing publications.*

Outcomes	Performance Indicators
• Enhanced and efficient multilingual dialogue and communication between the Agency and major stakeholders and Member States.	• Productivity as measured by number of words translated per hour worked. • Percentage of clients satisfied with the Agency's conference services.
• Foster the exchange of scientific and technical information on peaceful uses of atomic energy through timely dissemination of IAEA publications.	• Timely processing of Agency publications.

Projects

Title	Main Planned Outputs
5.0.9.001 Conference, languages and publishing services	Translated documents and summary records in the six official languages of the IAEA; organizational support and administrative and logistical services to approximately 2000 Agency meetings; and production of over 200 scientific and technical publications and other materials.

Subprogramme 5.0.10 Procurement Services

Objectives:

— *To assist achievement of the Agency's programmatic goals and objectives through procurement services.*
— *To achieve best value for money, through fair, transparent and effective competition.*

Outcomes	Performance Indicators
• Achievement of the best value for money for the Agency in procuring goods and services by considering this element in every phase of the procurement process and through fair, transparent and effective international competition.	• Reduce the number of procurements greater than €150 000 in respect of which an exception to competitive bidding is made under Financial Rule 110.38(a) (vi) and/or (vii). • Savings to the Agency.

Projects

Title	Main Planned Outputs
5.0.10.001 Procurement services	Ensure the purchase and delivery of goods, equipment and services are carried out in a way that meets the Agency's programmatic goals and objectives and achieves best value for money through fair, transparent and effective competition.

Major Programme 5 — Policy, Management and Administration Services

Summary of Programme Structure and Resources
(excluding Major Capital Investments)

	2018 at 2018 prices		2019 at 2018 prices	
Programme / Subprogramme / Project	**Regular Budget**	**Unfunded**	**Regular Budget**	**Unfunded**
5.0.1.001 Executive leadership and coordination	4 863 622	133 231	4 857 955	133 231
5.0.1.002 Policy-Making Organs	2 104 558	-	2 104 555	-
5.0.1.003 General coordination and management	1 284 424	-	1 284 422	-
5.0.1 Executive Leadership and Policy	**8 252 605**	**133 231**	**8 246 931**	**133 231**
5.0.2.001 Legal services	2 828 870	510 131	2 828 865	332 667
5.0.2 Legal Services	**2 828 870**	**510 131**	**2 828 865**	**332 667**
5.0.3.001 Oversight services	3 233 847	-	3 233 948	-
5.0.3 Oversight Services	**3 233 847**	**-**	**3 233 948**	**-**
5.0.4.001 Public information and communications	3 141 613	104 297	3 141 830	104 297
5.0.4 Public Information and Communications	**3 141 613**	**104 297**	**3 141 830**	**104 297**
5.0.5.001 Information communication technology	9 306 861	104 297	9 307 644	104 297
5.0.5 Information Communication Technology	**9 306 861**	**104 297**	**9 307 644**	**104 297**
5.0.6.001 Financial management and services	6 887 033	94 710	6 887 021	94 710
5.0.6 Financial Management and Services	**6 887 033**	**94 710**	**6 887 021**	**94 710**
5.0.7.001 HR advisory and administration services	6 348 282	-	6 348 271	-
5.0.7 Human Resources Management	**6 348 282**	**-**	**6 348 271**	**-**
5.0.8.001 General Services management	28 182 439	-	28 182 392	-
5.0.8 General Services	**28 182 439**	**-**	**28 182 392**	**-**
5.0.9.001 Conference, languages and publishing services	4 889 618	-	4 889 501	-
5.0.9 Conference, Languages and Publishing Services	**4 889 618**	**-**	**4 889 501**	**-**
5.0.10.001 Procurement services	2 009 602	104 297	2 009 598	-
5.0.10 Procurement Services	**2 009 602**	**104 297**	**2 009 598**	**-**
5.S Corporate shared services	**3 967 253**	**-**	**3 958 959**	**-**
Major Programme 5 - Policy, Management and Administration Services	**79 048 022**	**1 050 965**	**79 034 960**	**769 203**

Major Programme 5 — Policy, Management and Administration Services
Activities unfunded in the Regular Budget

Project	Tasks	2018 Unfunded	2019 Unfunded
5.0.1.001 Executive leadership and coordination	Overall management	133 231	133 231
5.0.2.001 Legal services	Legal services	510 131	332 667
5.0.4.001 Public information and communications	Public information and communications	104 297	104 297
5.0.5.001 Information communication technology	IT systems engineer	104 297	104 297
5.0.6.001 Financial management and services	Financial management and services	94 710	94 710
5.0.10.001 Procurement services	Procurement services	104 297	-
Grand Total		**1 050 965**	**769 203**

Major Programme 6
Management of Technical Cooperation for Development

Introduction

Major Programme 6 enables the development, implementation and management of technical cooperation projects in the framework of the biennial technical cooperation programme (TCP). Technical cooperation projects are developed through a consultative process to address national development priorities outlined in Country Programme Frameworks (CPFs) and national development plans and to address issues of common interest and needs identified through various regional frameworks.

The TCP consists of national, regional and interregional projects funded from the Technical Cooperation Fund (TCF) and from extrabudgetary contributions. The TCP will continue to serve as a major vehicle for the transfer of nuclear technology and capacity building in nuclear applications in Member States and contributes to their efforts in achieving the Sustainable Development Goals (SDGs).

Under the 2018–2019 TCP, a total of 136 Member States, including 35 least developed countries, will have a national TCP, representing an increase of 7 Member States compared with the 2016–2017 cycle.

For planning purposes, the overall rate of attainment of the TCF is assumed to reach at least 92%. The TCP for 2018–2019 is formulated with due emphasis on the following:

- Ensuring adequate support to the growing number of Member States that participate in the TCP and to the extended demands of Member States for the peaceful uses of nuclear technology for their sustainable development including the achievements of the SDGs, in particular SDGs 2, 3, 6, 7, 9, 13, 14, 15 and 17;
- Strengthening technical cooperation support to Member States with regard to radiation safety as well as legal and regulatory infrastructures;
- Contributing to the international efforts with regard to the assessment of the impact of climate change through the TCP;
- Providing support to those Member States requiring dedicated assistance in introducing and/or expanding their cancer care capacity by integrating radiotherapy, diagnostic imaging and nuclear medicine services into a comprehensive cancer control programme;
- Ensuring the Agency's continued capability to deliver the programme and to swiftly and adequately respond to Member States' emerging and urgent requests for support through the TCP.
- Enhancing the effectiveness, efficiency and quality of the TCP and progressive implementation of outcome monitoring and evaluation measures;
- Strengthening partnership, including public–private partnership (PPP), and resource mobilization for the TCP;
- Enhancing the visibility, promotion and outreach efforts related to the Agency's TCP.

Objectives:
— *To develop and implement a needs based, responsive technical cooperation programme in an effective and efficient manner to strengthen technical capacities of Member States in the peaceful application and safe use of nuclear technologies for sustainable development.*

Outcomes	Performance Indicators
• Development and implementation of an effectively and efficiently coordinated TCP.	• Percentage of completed technical cooperation projects during the previous year that achieved the established objectives at the output level. • Percentage of technical cooperation projects that are completed within the approved time frame.
• Continuously improved quality of the TCP.	• Percentage of projects with an annual progress assessment report.
• Enhanced engagement of Member States in the TCP, with commitment to the principles of ownership, relevance and sustainability, as well as strengthened relations with partners.	• Percentage of Member States with national TCPs that have valid CPFs. • Number of valid partnership agreements.

Programmatic changes and trends

Subprogramme 6.0.1 Management of the Technical Cooperation Programme: Requests by Member States for the TCP are expected to increase in 2018–2019, driven, inter alia, by seven additional Member States that will have national TCPs, increased demand for the application of nuclear technology in support of sustainable development, including in the areas of human health — especially for cancer, food and agriculture — and water resource management and the environment. Strengthening national radiation safety as well as legal and regulatory infrastructures remains a priority for Member States, which is also expected to see increased request for assistance by Member States in exploring nuclear energy options. Requests for assistance by Member States to cope with epidemic or natural emergencies, which have drastically increased in recent years, are also likely to continue.

Projects

Title	Main Planned Outputs
6.0.1.001 Overall management and strategic guidance	Technical cooperation related guidance, criteria and procedures; statements at major meetings and events; reports to Policy-Making Organs (PMOs); TC Annual Report; TACC documentation; concept notes and papers; strategic analyses; and extra budgetary resources mobilized.
6.0.1.002 Coordination of and support to the TC programme	Revised CPFs guidelines and templates; revised TC quality criteria; TACC documentation; support documents to PMOs; briefing notes; partnership documents and extra budgetary resources mobilized.
6.0.1.003 Management of the TC programme for Africa	Drafted/signed/updated CPFs; UNDAF and regional strategic cooperative framework; TACC documentation; Country Programme Notes (CPNs); expert missions, fellowships, training courses, procurement processed; briefing notes; programming and monitoring reports; partnership documents and EB resources mobilized.
6.0.1.004 Management of the TC programme for Asia and the Pacific	Drafted/signed/updated CPFs; UNDAF and regional strategic cooperative framework; TACC documentation; CPNs; expert missions, fellowships, training courses, procurement processed; briefing notes; programming and monitoring reports; partnership documents and EB resources mobilized.
6.0.1.005 Management of the TC programme for Europe	Drafted/signed/updated CPFs; UNDAF and regional strategic cooperative framework; TACC documentation; CPNs; expert missions, fellowships, training courses, procurement processed; briefing notes; programming and monitoring reports; partnership documents and EB resources mobilized.

Title	Main Planned Outputs
6.0.1.006 Management of the TC programme for Latin America and the Caribbean	Drafted/signed/updated CPFs; UNDAF and regional strategic cooperative framework; TACC documentation; CPNs; expert missions, fellowships, training courses, procurement processed, briefing notes; programming and monitoring reports; partnership documents and EB resources mobilized.
6.0.1.007 Procurement services	Purchase and delivery of goods, services, equipment and services under TCP in accordance with the Agency's programmatic goals and objectives.
6.0.1.008 Coordination of and support to the PACT	Strategic resource mobilization and communications activities; partnership documents and extra budgetary resources mobilized; country cancer profiles; imPACT reviews; expert advisory missions.

Major Programme 6 — Management of Technical Cooperation for Development
Summary of Programme Structure and Resources
(excluding Major Capital Investments)

	2018 at 2018 prices		2019 at 2018 prices	
Programme / Subprogramme / Project	**Regular Budget**	**Unfunded**	**Regular Budget**	**Unfunded**
6.0.1.001 Overall management and strategic guidance	1 060 789	-	1 060 789	-
6.0.1.002 Coordination of and support to the TC programme	4 436 771	-	4 436 269	-
6.0.1.003 Management of the TC programme for Africa	4 636 117	-	4 636 117	-
6.0.1.004 Management of the TC programme for Asia and the Pacific	3 820 059	-	3 820 059	-
6.0.1.005 Management of the TC programme for Europe	3 224 343	-	3 224 343	-
6.0.1.006 Management of the TC programme for Latin America and the Caribbean	3 101 865	104 297	3 101 864	104 297
6.0.1.007 Procurement services	1 646 524	-	1 646 524	-
6.0.1.008 Coordination of and support to the PACT	2 400 876	-	2 400 876	-
6.0.1 Management of Technical Cooperation Programme	**24 327 344**	**104 297**	**24 326 841**	**104 297**
6.S Corporate shared services	**1 206 850**	**104 297**	**1 201 191**	**104 297**
6.0 Management of Technical Cooperation Programme	**25 534 194**	**104 297**	**25 528 032**	**104 297**
Major Programme 6 - Management of Techical Cooperation for Development	**25 534 194**	**104 297**	**25 528 032**	**104 297**

Major Programme 6 — Management of Technical Cooperation for Development
Activities unfunded in the Regular Budget

Project	Tasks	2018 Unfunded	2019 Unfunded
6.0.1.006 Management of the TC programme for Latin America and the Caribbean	Management of the TC programme for Latin America	104 297	104 297
Grand Total		**104 297**	**104 297**

ANNEXES

Annex 1. List of Acronyms

AIPS	Agency-wide Information System for Programme Support
ALADDIN	A Labelled Atomic Data Interface
ALMERA	Analytical Laboratories for the Measurement of Environmental Radioactivity
AMBDAS	Atomic and Molecular Bibliographic Data System
AP	Action Plan [IAEA Action Plan on Nuclear Safety]
ARTEMIS	Integrated Review Service for Radioactive Waste and Spent Fuel Management, Decommissioning and Remediation
BSS	Basic Safety Standards
CA	complementary access
CAM	Competent Authorities' Meeting
CIELO	Collaborative International Evaluated Library Organization
CLP4NET	Cyber-Learning Platform for Networking, Education and Training
CNS	Convention on Nuclear Safety
ConvEx	Convention Exercise
COP	Conference of the Parties to the United Nations Framework Convention on Climate Change
CPFs	Country Programme Frameworks
CPNs	Country Programme Notes
CPPNM	Convention on the Physical Protection of Nuclear Material
CRP	coordinated research project
CSA	comprehensive safeguards agreement
CT	computed tomography
D&ER	decommissioning and environmental remediation
D&IS	development and implementation support
DEEP	Desalination Economic Evaluation Program
DEMO	demonstration fusion power plant
DE-TOP	Desalination Thermodynamic Optimization Program
DIV	design information verification
DPRK	Democratic People's Republic of Korea
DSRS	disused sealed radioactive source
E&T	education and training
ELETTRA	Elettra - Sincrotrone Trieste S.C.p.A. - IAEA partner
ENVIRONET	Network on Environmental Management and Remediation
EPR	emergency preparedness and response
EPRIMS	Emergency Preparedness and Response Information Management System
FAO	Food and Agriculture Organization of the United Nations
FINAS	Fuel Incident Notification and Analysis System
GC	General Conference
GNIP	Global Network of Isotopes in Precipitation
GNIR	Global Network of Isotopes in Rivers
GSR	General Safety Requirements
HAB	harmful algal bloom
HEEP	Hydrogen Economic Evaluation Program
HEU	high enriched uranium
HHC	Human Health Campus
HRKD	Human Resource and Knowledge Development

HTGR	high temperature gas cooled reactor
I&C	instrumentation and control
IACRNE	Inter-Agency Committee on Radiological and Nuclear Emergencies
IACRS	Inter-Agency Committee on Radiation Safety
ICERR	IAEA-designated International Centre based on Research Reactor
ICSRS	International Catalogue of Sealed Radioactive Sources and Devices
ICT	information and communication technology
ICTP	International Centre for Theoretical Physics
IDN	International Decommissioning Network
IES	Incident and Emergency System
IGALL	International Generic Ageing Lessons Learned
ILO	International Labour Organization
INES	International Nuclear and Radiological Event Scale
INIR	Integrated Nuclear Infrastructure Review
INIS	International Nuclear Information System
INLN	International Nuclear Library Network
INPRO	International Project on Innovative Nuclear Reactors and Fuel Cycles
INSAG	International Nuclear Safety Group
INSEN	International Nuclear Security Education Network
INSSP	Integrated Nuclear Security Support Plan
IO	international organization
IPSAS	International Public Sector Accounting Standards
IRDFF	International Reactor Dosimetry and Fusion File
IRL	Internet Reactor Laboratory
IRMIS	International Radiation Monitoring Information System
IRRIA	Integrated Research Reactor Infrastructure Assessment
IRRS	Integrated Regulatory Review Service
IRS	International Reporting System for Operating Experience
IRSRR	Incident Reporting System for Research Reactors
IT	information technology
ITDB	Incident and Trafficking Database
ITER	International Thermonuclear Experimental Reactor
JCPOA	Joint Comprehensive Plan of Action
J-MOX	Japan Mixed Oxide Fuel Fabrication Plant
JPLAN	Joint Radiation Emergency Management Plan of the International Organizations
KM	knowledge management
KMAV	Knowledge Management Assist Visit
LEU	low enriched uranium
LTO	long term operation
MARiS	Marine Information System
MOSAIC	Modernization of Safeguards Information Technology
MRI	magnetic resonance imaging
MS	Member State(s) [can be singular or plural]
MSSP	Member State Support Programme
NAEL	IAEA Environment Laboratories

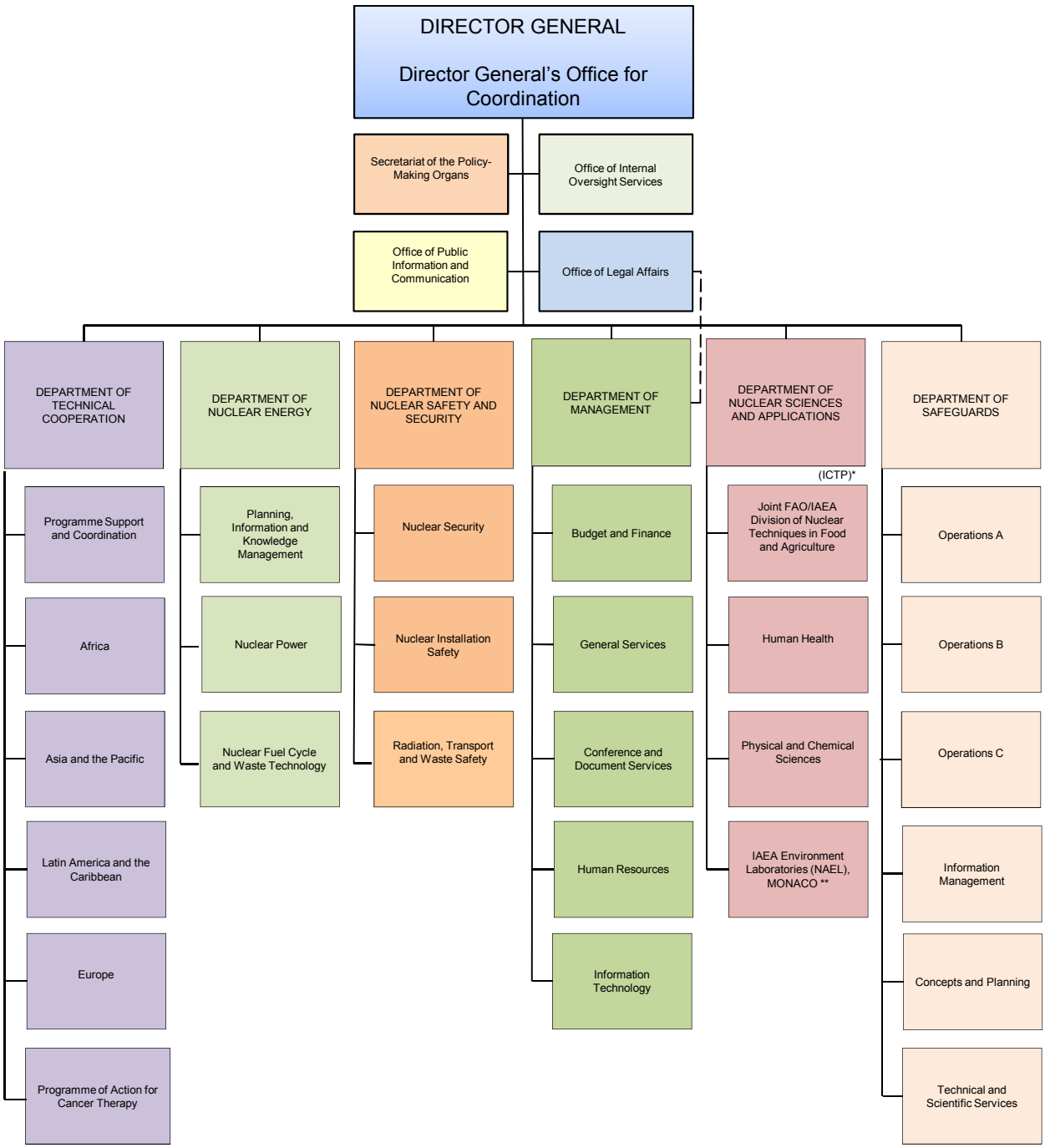
NCD	non-communicable disease
NDA	non-destructive assay
NE	nuclear energy
NEA	Nuclear Energy Agency
NES	Nuclear Energy System
NESA	Nuclear Energy System Assessment
NKM	nuclear knowledge management
NORM	naturally occurring radioactive material
NPP	nuclear power plant
NPT	Treaty on the Non-Proliferation of Nuclear Weapons
NSF	Nuclear Security Fund
NSGC	Nuclear Security Guidance Committee
NSP	Nuclear Security Plan
NSS	IAEA Nuclear Security Series
NSSC	Nuclear Security Support Centre
NUMDAB	Nuclear Medicine Database (IAEA)
NUSEC	Nuclear Security Information Portal
NUSIMS	Nuclear Security Information Management System
NWAL	Network of Analytical Laboratories
OA	ocean acidification
OA-ICC	Ocean Acidification International Coordination Centre
OE	operational experience
OECD	Organisation for Economic Co-Operation and Development
OIOS	Office of Internal Oversight Services
OLA	Office of Legal Affairs
OMARR	Operation and Maintenance Assessment for Research Reactors
OPIC	Office of Public Information and Communication
ORPAS	Occupational Radiation Protection Appraisal Service
OSART	Operational Safety Review Team
OSMIR	OSART Mission Results
PACT	Programme of Action for Cancer Therapy
PET	positron emission tomography
PGEC	postgraduate educational course
PMO	Policy-Making Organs
PPP	Public-Private Partnership
PROSPER	Peer Review of Operational Safety Performance Experience
QA	quality assurance
QC	quality control
QUANUM	Quality Assurance in Nuclear Medicine (IAEA)
R&D	research and development
RASIMS	Radiation Safety Information Management System
RBI	Ruđer Bošković Institute (Croatia)
RBM	results-based management
RegNet	International Regulatory Network
REPLIE	Response Plan for Incidents and Emergencies
RPOP	Radiation Protection of Patients [website]

RR	research reactor
RRADB	Research Reactor Ageing Database
RRDB	Research Reactor Database
RSAC	regional system of accounting for and control of nuclear material
RTW	radiation, transport and waste
RWM	radioactive waste management
SAET	Safety Assessment Education and Training
SAGNA	Standing Advisory Group on Nuclear Applications
SAGSI	Standing Advisory Group on Safeguards Implementation
SALTO	Safety Aspects of Long Term Operation
SAMG-D	Severe Accident Management Guideline Development [Toolkit]
SARCoN	Guidelines for Systematic Assessment of Regulatory Competence Needs
SDG	Sustainable Development Goal
SEED	Site and External Events Design
SF	spent fuel
SGAS	Safeguards Office of Safeguards Analytical Services
SGOA	Safeguards Division of Operations A
SGOB	Safeguards Division of Operations B
SGOC	Safeguards Division of Operations C
SIR	Safeguards Implementation Report
SIT	sterile insect technique
SLA	State-Level safeguards approach
SMRs	small and medium sized or modular reactors
SOPs	standard operating procedures
SPECT	Single-photon emission computed tomography
SSAC	State system of accounting for and control of nuclear material
STEP	Southern Rift Valley Tsetse Eradication Project
TACC	Technical Assistance and Cooperation Committee
TC	Department of Technical Cooperation
TCF	Technical Cooperation Fund
TCP	TC programme
TECDOC	IAEA Technical Document
TM	Technical Meeting
TTT	train the trainers
UAV	unmanned aerial vehicle
UNDAF	United Nations Development Assistance Frameworks
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNESCO-IHE	UNESCO-IHE Institute for Water Education
UPC	uranium production cycle
USIE	Unified System for Information Exchange in Incidents and Emergencies
VIC	Vienna International Centre
VOA	voluntary offer agreement
WAMP	Water Management Program in Nuclear Power Plants
WCR	water cooled reactor

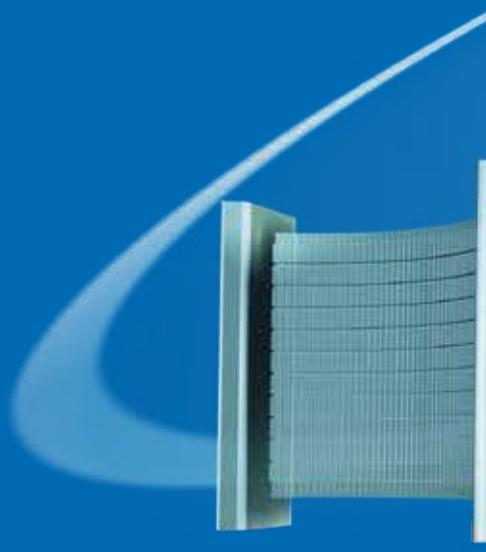
WHO	World Health Organization
WISER	Water Isotope System for Data Analysis, Visualization, and Electronic Retrieval (IAEA)
XRF	X-ray fluorescence

Annex 2. Organizational Chart

(as of 1 January 2017)



* The Abdus Salam International Centre for Theoretical Physics (ICTP) operates under a tripartite agreement with the Italian Government, the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the Agency. Administration is carried out by UNESCO on behalf of all parties.
** With the participation of UNEP and IOC.



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