The Agency's Programme and Budget 2022–2023

IAEA
International Atomic Energy Agency
Atoms for Peace and Development

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Foreword by the Director General

The world is experiencing an unprecedented pandemic. Its consequences have yet to be fully understood and ascertained. New business modalities are already becoming evident, where innovations, partnerships and value for money are looked at from new perspectives. At the onset of the pandemic, I asked Agency staff to remain proactive and ahead of the curve since the Agency could not afford to stop its activities. In response, they amply demonstrated their professionalism, resilience and dedication, and achieved some remarkable outcomes despite the constraints of lockdowns and disrupted international transport. The Agency continued to implement safeguards throughout the world to verify States' commitments to use nuclear material only for peaceful purposes and successfully delivered on the largest technical cooperation project in the Agency's history, in terms of both the number of beneficiary countries and the disbursement of resources, to help countries confront COVID-19. The Agency was also able to continue to deliver its programmatic activities with minimal disruption, while giving full attention to the health and well-being of staff.

In preparing *The Agency's Programme and Budget 2022–2023*, the Agency faces a challenging operating environment. On the one hand, the demand on its services is continuously increasing, while, on the other, the global economic situation requires prudence.

The Agency's membership continues to grow, as does the global use of nuclear technologies and applications, with an associated increase in the amount of nuclear and radioactive materials in the world. More and more countries are adhering to international legal instruments for nuclear safety, nuclear security and safeguards. Strengthening regulatory and safety infrastructures remains a priority for Member States. They are likely to undertake considerable decommissioning work on power reactors, research reactors and other types of facilities. Nuclear techniques are being used in support of sustainable development and Member State efforts to achieve the Sustainable Development Goals, including in the areas of human health, especially for cancer control; food and agriculture; water resource management; and the environment.

The growing interest from Member States in addressing the monitoring and detection of zoonotic diseases using nuclear and nuclear-derived techniques has focused our attention on areas such as animal and human health. The Agency will further enhance its support to Member States and the international community in a number of areas, such as preventing and combating zoonotic diseases; coping and responding to unforeseen needs and emergencies related to disease outbreaks, extreme climate events and natural disasters; combating plastic pollution; assisting the transition to a clean energy future for the

world; and promoting greater engagement of women in the nuclear field in its efforts towards gender equality.

The Agency will continue to facilitate the transfer of nuclear technology and knowledge, to provide a strong and sustainable global nuclear safety and security framework, working to protect people, society and the environment from the harmful effects of ionizing radiation, and to verify that States are honouring their international obligations to use nuclear science and technology only for peaceful purposes.

I am particularly mindful of the increasing demands on the Agency for support. Given the state of the global economy and the growing gap between demand and resources, my endeavour is to enlarge our donor base by forging new partnerships. Additional resources, including from development and regional banks, the private sector, interested foundations and others, would be leveraged to continue to provide meaningful support to the work of the Agency.

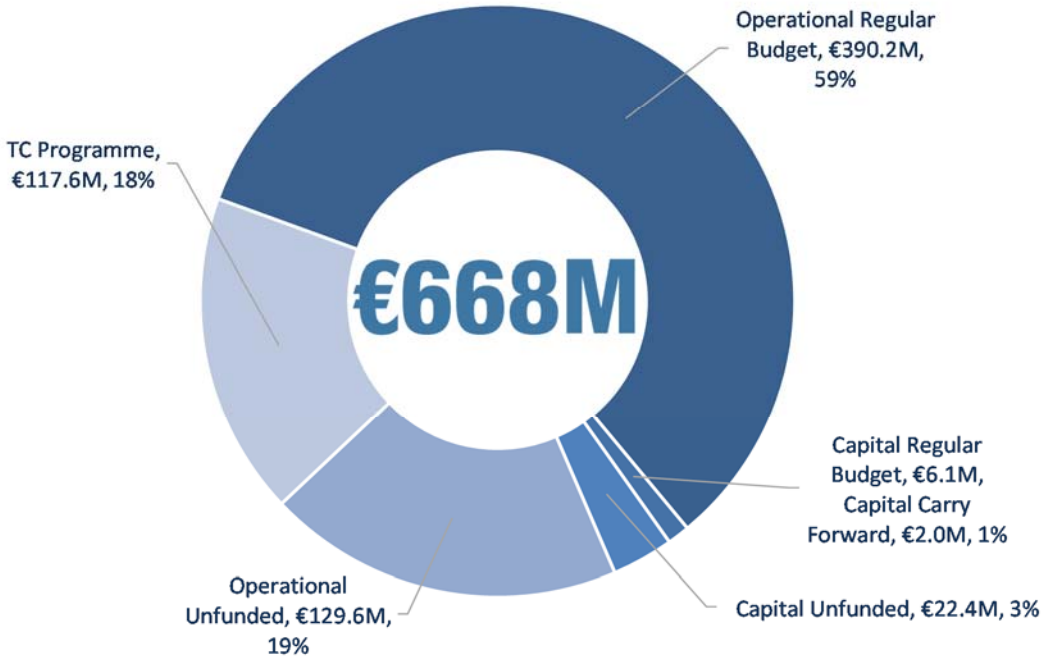
The Agency's Programme and Budget 2022–2023, my first Programme and Budget document as Director General, has been prepared while fully considering the environment in which we operate. At the outset of the process, I asked my staff to be mindful of the global economic hardships exacerbated by the pandemic. To that end, *The Agency's Programme and Budget 2022–2023* has been prepared with a strong focus on finding sustainable efficiencies and ensuring the effectiveness of our activities. The lessons from innovations in programme delivery during the pandemic were also applied in the planning to pursue further efficiencies, where feasible. For the first time, I have set financial targets for efficiencies. The savings resulting from these adjustments will enable the Agency to accommodate Member States' increased demand for its services, without an increase to the Regular Budget despite our expanding responsibilities. The Agency will continue to make efforts to improve transparency concerning its activities. I am committed to managing the resources at the Agency's disposal wisely and productively, and with discipline and restraint.

Rafael Mariano Grossi
Director General

2022–2023 Programme and Budget at a Glance

2022 Total Resources [1]

Zero Real Growth budget, with the Agency delivering more with the same resources



The Agency's Programme and Budget 2022–2023:

- Is responsive and realistic in light of the financial constraints exacerbated by the COVID-19 pandemic;
- Includes sustainable efficiencies and ensures effectiveness of the Agency's activities;
- Sets efficiency targets at the outset so as to free up resources to address the increased demand for the Agency's services; and
- Focuses on enhancing partnerships and resource mobilization efforts.

2022 Regular Budget

Total Regular Budget
€396.3M

Zero Real Growth Budget

>€10M Efficiencies
(Travel, Staff Costs and other areas)

1.7%
Price adjustment

[1]All figures in this document are presented in euros at 2022 prices, unless otherwise indicated. Figures in tables may not add up to corresponding sums owing to rounding. Activities currently unfunded in the Regular Budget for which extrabudgetary resources would be required are shown as 'unfunded' in the charts and tables of this document.

PART I

The Agency's Programme and Budget 2022–2023

I.1 Overview

Overview

1. During the 2020–2021 biennium, a new type of coronavirus emerged, the severe acute respiratory syndrome coronavirus, which causes COVID-19. Since 11 March 2020, when the World Health Organization declared COVID-19 a pandemic, the world has been reeling from its impact. The Agency quickly and effectively adapted to the new environment and continued to deliver on its mandate, with operations as close to normal as possible under the new constraints, demonstrating its resilience and ingenuity.

2. The pandemic has also led to the broad recognition of diversity of applications of nuclear science and technology, as 128 countries and territories turned to the Secretariat for assistance in combating the pandemic using nuclear techniques. Despite the constraints of lockdowns and disrupted international transport, the Agency managed to mobilize more than 1,900 shipments to recipient countries and territories, which included real time reverse transcription–polymerase chain reaction (real time RT-PCR) equipment, accessories, reagents and consumables necessary for detecting the virus, as well as conducting many training events and publishing documents for laboratory and medical professionals, making it the largest rapid response assistance mission in the history of the Agency.

3. 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 clear trend for the increasing use of atomic energy for development, the Secretariat will continue to work closely with Member States and support them, mainly through technical cooperation projects, through a wide range of its programmatic activities, in their efforts to meet their development challenges related to human health, food security, climate change, water management, preparedness and response capabilities for outbreaks of zoonotic diseases, including the achievement of the Sustainable Development Goals (SDGs). The Secretariat is also expected to do more to help Member States respond to unforeseen needs and emergencies related to disease outbreaks, extreme climate events and natural disasters.

4. While the pandemic has further exacerbated the global economic situation already suffering a slowdown, membership of the Agency continues to grow, as does the use of nuclear technologies and applications, with an associated increase in the amount of nuclear and radioactive materials in the world. Countries' adherence to international legal instruments in the areas of nuclear safety, nuclear security and safeguards also continues to grow. There is therefore increased demand on the Agency to provide its services also in this regard.

5. The Director General, mindful of the changing environment, has decided to propose the Programme and Budget for the 2022–2023 biennium that builds on prioritization, internal coordination and partnerships to deliver more efficient and effective results. The Agency will endeavour to 'do more with the same resources at hand' by strengthening the one-house approach and results based management in all areas of the Agency's work in order to provide high-quality support to Member States, while seeking more opportunities for savings.

The Director General is proposing a zero real growth (ZRG) Regular Budget for the coming biennium.

6. Furthermore, strict efficiency targets were set so as to free up resources to enable the Agency to respond, at least partially, to the increased demands being placed on it. Additionally, enhanced focus on partnerships and resource mobilization should enable the Agency to further respond to the increasing demands.

The Regular Budget is proposed at zero real growth, with the operational Regular Budget for 2022 at €390.2 million. The €6.7 million increase compared to 2021 mainly represents the price adjustment of 1.7%.

The capital Regular Budget for 2022 is proposed at €6.1 million, including the price adjustment of 1.7%. This represents a decrease of €0.1 million compared to 2021.

7. The Agency will continue to actively pursue a harmonized corporate approach to enlarge its donor base by forging new partnerships, and to seek new forms of collaboration and sources of funding to enable the expansion of services offered to Member States.

8. It will continue to strengthen strategic partnerships and coordination with the United Nations and other international organizations, leveraging their respective expertise and collaboration with external institutions to advance progress, and optimizing the impact and benefits of the Agency's support to Member States.

9. All figures in this document are presented in euros, at 2022 prices, unless otherwise specified.

Efficiencies

10. *The Agency's Programme and Budget 2022–2023* was prepared with an understanding of the environment in which the Agency operates, taking into consideration the uncertain financial environment, as well as Member States' concerns about growth in human resources over the past years, while recognizing that the Agency continues to be constrained by an ever increasing workload.

11. The Agency has implemented a more holistic approach to strengthening management capabilities, strategically optimizing and reallocating resources according to the priority of the work programmes and creating synergies from interdependencies and cross-functional collaboration by implementing a structured process for finding, tracking and monitoring efficiencies to fund new or enhanced activities.

12. The specific recommendations of Member States from discussions on *The Agency's Programme and Budget 2020–2021*, elaborated in document GOV/2019/25, guided the preparation of *The Agency's Programme and Budget 2022–2023*, specifically with regard to ensuring that efficiencies and productivity increases are achieved, with a view to better managing human resources costs, and that the effectiveness of the Agency is ensured through the strengthening of the results based approach.

13. With this in mind, the Director General established that the Agency will have to continue delivering efficiently and that resources entrusted to the Secretariat by its Member States must be managed wisely and productively, with discipline and restraint. As a result, there was a strong focus on finding sustainable efficiencies, while ensuring effectiveness.

Efficiencies of €10.7 million were achieved within the budget for each year of the biennium.

14. These efficiency gains will enable the Secretariat to accommodate the increased demand from Member States while limiting the growth of the Regular Budget.

15. Two main areas were targeted for sustainable efficiencies in *The Agency's Programme and Budget 2022–2023*:

- Human resources — taking note of the comprehensive review of human resources and views expressed by Member States regarding the human resources budget, the Director General has instituted a cap on human resources, both from a financial and

full-time equivalent (FTE)[2] perspective; and

- Travel — an efficiency target for travel was set, which is to be achieved through prioritization, where an increased use of virtual collaboration methods is to be implemented without compromising the quality of programmatic delivery. This will mean not only achieving cost savings, but also reaching a wider audience, through increasing the focus on e-learning tools and online education platforms.

16. In addition to these main cross-cutting areas, Departments were asked to closely scrutinize all operating costs to find further sustainable efficiencies, so as to reach the overall efficiency target.

17. The Agency will also continue to work on ensuring that it is a more responsive and agile organization, that it remains relevant in its diverse fields of work and that it is an organization that increasingly uses modern technologies to ensure that it can meet the increased demand (e.g. renovations required at the Seibersdorf laboratories; equipment needed by the Department of Safeguards and other areas; and increasing use of advanced technology such as artificial intelligence, machine learning and e-learning). The use of modern technology should enable the Agency to achieve efficiencies in the course of 2022–2023, reduce the number of FTE staff required, and enable the Agency to rely more on virtual collaboration.

18. The infographics on pages 4–5 provide additional detail on efficiencies identified in the course of the planning of the 2022–2023 biennium.

19. From a programmatic perspective, the Agency has been addressing increased demand for its services with the same budget levels, thereby achieving increased operational efficiencies. Agency-wide and Major Programme-specific metrics representing the increase in demand and operational efficiencies of the past were recognized through an assessment performed by the Office of Internal Oversight Services (OIOS).

20. In the context of *The Agency's Programme and Budget 2022–2023* preparation, the Director General:

- Set a cap of 75% on the human resources component of the total operational Regular Budget for the 2022–2023 biennium to halt the increasing trend of the past years. This represents a reduction of the human resources portion of the operational Regular Budget from 76% in the approved 2021 budget to 75% for 2022 and 2023;
- Encouraged the continuation of the trend towards reducing the overall number of General Service FTEs; and
- Set a target to abolish 10% of FTEs that are expected to be vacated (through rotation, retirement or separation) during the 2022–2023 biennium.

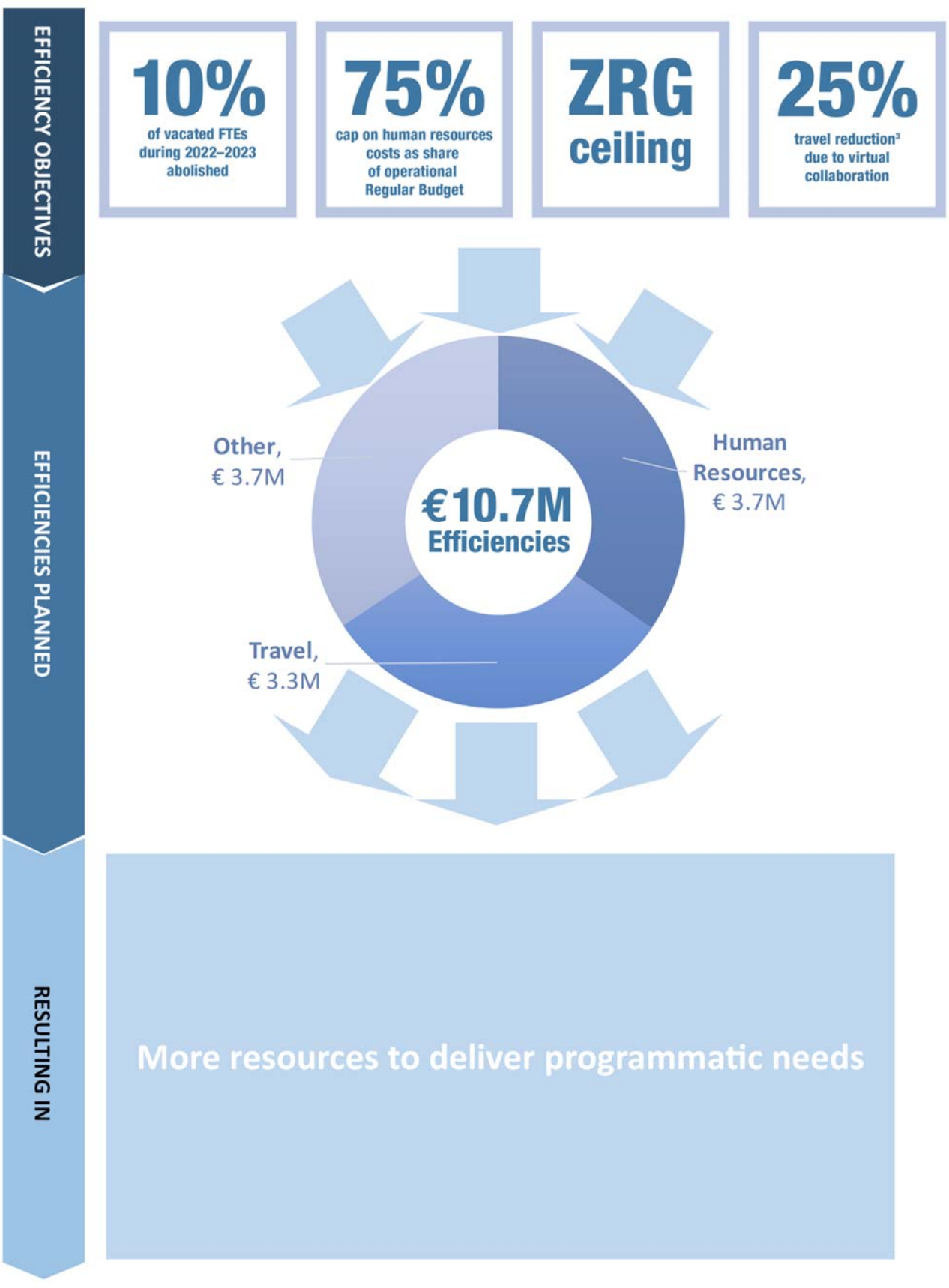
21. With the above-mentioned measures, a net decrease of 29.6 FTEs was achieved for the 2022–2023 biennium compared to the 2021 approved budget.

22. In addition, in 2020, the Director General approved a number of human resources policy changes, including a revision to the recruitment procedures, with a view to strengthening the roles and responsibilities of staff involved in the recruitment process and to streamlining the process, including gender parity.

23. The Director General introduced special measures for the achievement of gender parity in order to support his goal of achieving gender parity by 2025 in the Professional and higher categories, overall, at the Agency level. These measures are implemented bearing in mind the highest standards of efficiency, technical competence and integrity.

[2] Full-time equivalent (FTE) is a measure of planned volume of human resources devoted to the implementation of specific Agency programmatic activities, where one FTE means that the staff member is equivalent to a full-time worker.

2022–2023 Programme and Budget Efficiencies



[3] Excluding Safeguards in-field verification activities.

2022–2023 Programme and Budget Efficiencies

Human Resources

€3.7M

Reduction in number of FTEs by:

- Streamlining and automation of work, including through AIPS;
- Utilizing modern technologies and techniques in programmatic areas; and
- Introducing process improvements, consolidation of business processes and re-distribution of tasks.

Since 2011

84 (8.4%)

General Service FTEs reduced

29.6 FTEs

Net decrease by end of 2023, as compared to 2021

1377.8

Professional Staff FTEs[4]

15.3 FTEs

(1.1%) Less than 2021

914.4

General Service Staff FTEs

14.3 FTEs

(1.5%) Less than 2021

Travel

€3.3M

- Virtual collaboration through e-learning tools, online education platforms, as well as web and video conferencing, leveraging experience obtained during COVID-19 pandemic;
- Optimizing size and duration of duty travel missions; and
- Grouping and combining expert missions.

Aside from cost savings, additional benefits of virtual collaboration include increased outreach to a wider audience

Other

€3.7M

- Reducing printing costs through increased use of electronic media, including digital publications;
- Further centralization of purchasing and enhancement of procurement planning, to continue with re-negotiation of contracts at lower rates, as well as streamlining and rationalization of costs in area of supplies, equipment, contracts and other operating expenses; and
- Reduction in consultancies through increased reliance on in-house expertise and decreasing number of research contracts and coordinated research projects in mature areas.

[4] Full-Time Equivalent (FTE) is a measure of planned volume of human resources devoted to the implementation of specific Agency programmatic activities, where one FTE means that the staff member is equivalent to a full-time worker.

Managing for Results

24. As requested by Member States during *The Agency's Programme and Budget 2020–2021* discussions, the Secretariat has made concerted efforts to seek efficiencies and productivity gains. To accomplish better 'value for money' in the preparation of the Programme and Budget for the 2022–2023 biennium, emphasis has been placed on improving the quality of services delivered and achieving results.

25. The Agency has strengthened its results based management in its programme commitment to achieving results, as well as in converting inputs into activities and then to results in the most economical and effective way possible.

26. Performance indicators have been further refined to measure programme performance, with a view to ensuring that reporting to Member States is conducted in a more meaningful manner. The status of the achievement of indicators will continue to be assessed and documented. Emphasis on reliable data sources and more systematic collection methods will continue.

27. Risk management has been further embedded in major Agency processes, and has been linked with the accountability framework and results based management to ensure consistent consideration of risks in all decision making and resource allocation. A structured approach for the identification, assessment, mitigation, monitoring and management of risk is followed in order to ensure that all risk areas are covered.

28. Cross-cutting issues, such as the SDGs and gender equality are, to varying degrees, relevant to all aspects of the Agency's activities. Mainstreaming cross-cutting issues means that these themes are an integral dimension for consideration during the design, implementation, monitoring and evaluation of the Agency's programmes.

29. Member States use nuclear science and technology to meet their development objectives, including the SDGs. Nuclear science and technology contribute directly to 9 of the 17 SDGs.

30. Over 70% of operational projects proposed under *The Agency's Programme and Budget 2022–2023* contribute to the SDGs, with the majority focused on SDG 9 (industry, innovation and infrastructure), SDG 3 (good health and well-being) and SDG 7 (affordable and clean energy).

31. Gender equality and the empowerment of women lie at the heart of the SDGs, and they are vital to fully realizing the rights and potential of everyone. Since taking office, the Director General has made gender balance a priority, setting a clear and well-defined goal to achieve gender parity in the Professional and higher categories by 2025 as well as mainstreaming gender into the Agency's work.

32. To help increase the global talent pool in the nuclear field, the Director General launched the IAEA Marie Skłodowska-Curie Fellowship Programme, an initiative to encourage women from around the world to study nuclear subjects and pursue careers in the nuclear field and to help close the gender gap in this field. This initiative contributes to SDG 4 (quality education) and SDG 5 (gender equality).

33. The Agency continues its efforts to ensure that gender considerations are built into its programmes and activities, that women are fully represented in planning and delivering, and that women's concerns as beneficiaries of the Agency's work are addressed. This includes efforts to enhance the participation of women as training participants, fellows, scientific visitors, project counterparts, researchers, experts and panellists.

34. The programme delivery for *The Agency's Programme and Budget 2022–2023* will further focus on avoiding duplication, maximizing synergies and continually making efforts to better utilize available resources and increase efficiencies and effectiveness. Flexibility for sharing resources (financial, human, information, skills) and enhanced coordination across Major Programmes will be pursued in programme and financial planning, implementation and assessment of results.

35. Recognizing the increasing demand for support, the Agency will take further measures to build new partnerships and enlarge the donor base to bridge the growing gaps between demand and resources. Coordination, cooperation and collaboration with international organizations, governments and non-traditional partners, including development and regional banks, the private sector, interested foundations and others, will be strengthened.

I.2 Financial Overview

Total Resources

36. The Agency's total resources consist of the Regular Budget, extrabudgetary resources and resources for the technical cooperation programme (TCP). For the 2022–2023 biennium, the Agency's total resources amount to €1 331.4 million at 2022 prices, including unfunded requirements for which extrabudgetary resources will be sought.

2022–2023 Total Resources at a Glance (in millions)

Funding Source	2022	2023	Total
Operational Regular Budget	390.2	390.2	780.4
Capital Regular Budget	6.1	6.1	12.2
Operational Unfunded	129.6	126.6	256.2
Capital Unfunded	24.4	22.4	46.9
TC Programme	117.6	118.0	235.7
TOTAL	**668.0**	**663.4**	**1 331.4**

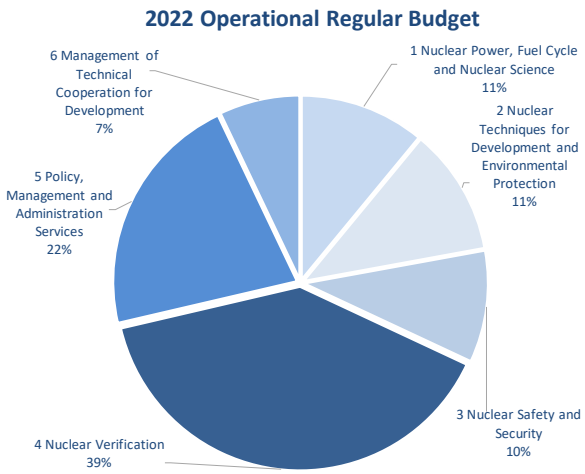
37. The Regular Budget consists of an operational portion and a capital portion used to fund major infrastructure investments in line with the Major Capital Investment Plan (MCIP). Regular Budget estimates are presented in six Major Programmes (Major Programmes 1 to 6), in accordance with the structure of the Agency's programme of work.

38. The Agency continues to rely on extrabudgetary funds to carry out some of its activities for which funding is not foreseen in the Regular Budget. For 2022, activities currently unfunded in the Regular Budget for which extrabudgetary resources would be required amount to €129.6 million for the operational portion and €24.4 million for the capital portion of the Regular Budget, of which €2.0 million will be covered by the capital Carry Forward. These activities are shown as 'unfunded' in the budget tables of this document.

39. For the TCP, €117.6 million is expected to be available in 2022 — €85.6 million for estimated core project funding, supplemented by €2.0 million of National Participation Costs and €30.0 million in extrabudgetary contributions in support of the TCP. For 2023, a total amount of €118.0 million is expected.

Operational Regular Budget Resources

40. The chart and the table below depict the operational Regular Budget, which is proposed at €390.2 million.



2022–2023 Operational Regular Budget (in millions)

Major Programme	2022	2023
1 Nuclear Power, Fuel Cycle and Nuclear Science	42.8	42.8
2 Nuclear Techniques for Development and Environmental Protection	43.5	43.5
3 Nuclear Safety and Security	38.3	38.3
4 Nuclear Verification	153.7	153.7
5 Policy, Management and Administration Services	84.3	84.3
6 Management of Technical Cooperation for Development	27.6	27.6
TOTAL	**390.2**	**390.2**

Capital Resources

41. The capital resources for 2022 have been allocated with a view to addressing the continuing capital needs of the Agency, while minimizing the overall growth of the Regular

Budget. The Director General is proposing an allocation of the Major Capital Investment Fund (MCIF) of €8.1 million, after price adjustment, to finance major infrastructure investments in line with the MCIP. Out of the MCIF allocation of €8.1 million for 2022, €6.1 million is proposed to be funded from the capital Regular Budget to be assessed to Member States and €2.0 million is proposed to be offset by the Carry Forward from the unspent balances of operational Regular Budget appropriations from prior years previously transferred to the MCIF.

42. The following table depicts the 2022–2023 capital investments. Details are provided in Section I.4.

2022–2023 Capital Investments (in millions)

Major Programme	2022	2023
2 Nuclear Techniques for Development and Environmental Protection	1.5	1.5
3 Nuclear Safety and Security	0.3	0.3
4 Nuclear Verification	1.0	1.0
5 Policy, Management and Administration Services	5.3	5.3
TOTAL	**8.1**	**8.1**

Other Financial Considerations

Major Items of Expenditure

43. Major items of expenditure include professional staff costs and general service staff costs (€289.4 million, at 2021 prices, or 75% of the 2022 operational Regular Budget), travel costs (€15.7 million or 4%), equipment and intangible assets (€14.5 million or 4%), buildings management and security costs (€19.5 million or 5%) and other direct costs (€44.5 million or 12%). As a result of efficiencies planned, mainly in the area of human resources and travel, the professional staff costs, general service staff costs, as well as travel costs decreased as compared to the 2021 approved budget. At the same time, the reinvestment of these reductions will address some of the ever-increasing work demands placed on the Agency. These efficiencies also allowed the Agency to decrease the overall share of the staff costs to 75%.

Price Adjustment

44. In line with the *Price Adjustment Methodology for the Agency's 2020–2021 Programme and Budget and Subsequent Biennia* (GOV/INF/2018/8), the price adjustment applied to each year, 2022 and 2023, is 1.7%. This percentage is based on the long term year-on-year change in the Harmonised Index of Consumer Prices for the euro area, as provided in the fourth quarter report of the European Central Bank's *Survey of Professional Forecasters*, issued in October 2020[5].

After-Service Health Insurance Liabilities

45. 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 €346 million (as of 31 December 2020).[6] Most United Nations system organizations are facing the issue of funding after-service staff liabilities, and most organizations have established reserves. A recommendation from the Agency's External Auditor to consider the implementation of a long term funding strategy for After-Service Health Insurance (ASHI) was first made in 2013 and was reiterated by the External Auditor in its reports in 2014 and 2017.

46. In GOV/INF/2021/7, and at the request of Member States, the Secretariat presented an update of the processes and discussions regarding ASHI in the United Nations system, measures being taken and considered by the Secretariat to mitigate ASHI costs and a review of options for funding the liability at the Agency. Taking note of Member States comments, the Secretariat will issue a further update in the first quarter of 2022.

[5] Available at: https://www.ecb.europa.eu/stats/ecb_surveys/survey_of_professional_forecasters/html/index.en.html.

[6] As contained in *The Agency's Financial Statements for 2020* (document GC(65)/4).

Budget Currency and Exchange Rate

47. 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 US $1.00. All tables and charts in this document are in euros, based on this budget exchange rate. The Secretariat 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. The majority of the expenditures of the Agency are in euros, however, as some are denominated in US dollars, the split assessment protects the Agency in the event of euro–US dollar currency fluctuations. The Secretariat will monitor any changes in the proportion of the currency of expenditures and report to Member States, if required.

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

Programme/Major Programme	2021 Budget	2022					2023	
		2022 Estimates at 2021 Prices	Variance compared to 2021 EUR	Variance compared to 2021 %	2022 Estimates at 2022 Prices	Price Adjustment	2023 Preliminary Estimates at 2022 Prices	2023 Preliminary Estimates at 2023 Prices
1. Nuclear Power, Fuel Cycle and Nuclear Science								
Overall Management, Coordination and Common Activities	3 360 351	3 425 858	65 507	1.9%	3 484 097	1.7%	3 507 986	3 567 622
Nuclear Power	9 239 624	9 369 623	129 999	1.4%	9 528 906	1.7%	9 528 907	9 690 898
Nuclear Fuel Cycle and Waste Management	7 914 211	9 380 914	1 466 703	18.5%	9 540 390	1.7%	9 542 745	9 704 972
Capacity Building and Nuclear Knowledge for Sustainable Energy Development	10 925 073	10 795 317	(129 755)	(1.2%)	10 978 838	1.7%	10 955 285	11 141 525
Nuclear Science	10 636 041	9 103 587	(1 532 455)	(14.4%)	9 258 348	1.7%	9 255 656	9 413 002
Major Programme 1	**42 075 299**	**42 075 299**	**0**	**0.0%**	**42 790 579**	**1.7%**	**42 790 579**	**43 518 019**
2. Nuclear Techniques for Development and Environmental Protection								
Overall Management, Coordination and Common Activities	8 413 870	8 773 981	360 111	4.3%	8 923 139	1.7%	8 923 166	9 074 860
Food and Agriculture	12 258 340	11 958 340	(300 000)	(2.4%)	12 161 632	1.7%	12 161 632	12 368 380
Human Health	8 989 368	8 947 371	(41 997)	(0.5%)	9 099 476	1.7%	9 099 478	9 254 169
Water Resources	3 813 179	3 813 035	(144)	(0.0%)	3 877 856	1.7%	3 877 858	3 943 781
Marine Environment	6 799 753	4 789 753	(2 010 000)	(29.6%)	4 871 178	1.7%	4 871 179	4 953 989
Radiochemistry and Radiation Technology	2 513 403	4 505 432	1 992 029	79.3%	4 582 024	1.7%	4 581 994	4 659 888
Major Programme 2	**42 787 912**	**42 787 912**	**0**	**0.0%**	**43 515 306**	**1.7%**	**43 515 306**	**44 255 066**
3. Nuclear Safety and Security								
Overall Management, Coordination and Common Activities	4 147 204	4 064 325	(82 879)	(2.0%)	4 133 419	1.7%	4 089 355	4 158 874
Incident and Emergency Preparedness and Response	4 539 719	4 544 373	4 654	0.1%	4 621 628	1.7%	4 616 894	4 695 381
Safety of Nuclear Installations	10 874 184	10 907 622	33 438	0.3%	11 093 052	1.7%	11 060 110	11 248 132
Radiation and Transport Safety	7 787 516	7 789 008	1 492	0.0%	7 921 421	1.7%	7 935 531	8 070 435
Radioactive Waste Management and Environmental Safety	3 927 320	3 930 193	2 872	0.1%	3 997 006	1.7%	3 978 499	4 046 134
Nuclear Security	6 406 666	6 447 088	40 422	0.6%	6 556 689	1.7%	6 642 823	6 755 751
Major Programme 3	**37 682 609**	**37 682 609**	**0**	**0.0%**	**38 323 213**	**1.7%**	**38 323 213**	**38 974 708**
4. Nuclear Verification								
Overall Management, Coordination and Common Activities	14 351 436	14 533 385	181 949	1.3%	14 780 452	1.7%	14 647 855	14 896 868
Safeguards Implementation	133 500 420	133 506 215	5 795	0.0%	135 775 821	1.7%	135 916 603	138 227 186
Other Verification Activities	3 236 900	3 049 156	(187 744)	(5.8%)	3 100 992	1.7%	3 092 807	3 145 385
Major Programme 4	**151 088 756**	**151 088 757**	**0**	**0.0%**	**153 657 265**	**1.7%**	**153 657 265**	**156 269 439**
5. Policy, Management and Administration Services								
Policy, Management and Administration Services	82 678 999	82 878 631	199 632	0.2%	84 287 568	1.7%	84 287 568	85 720 457
Major Programme 5	**82 678 999**	**82 878 631**	**199 632**	**0.2%**	**84 287 568**	**1.7%**	**84 287 568**	**85 720 457**
6. Management of Technical Cooperation for Development								
Management of Technical Cooperation for Development	27 159 116	27 159 116	0	0.0%	27 620 821	1.7%	27 620 821	28 090 375
Major Programme 6	**27 159 116**	**27 159 116**	**0**	**0.0%**	**27 620 821**	**1.7%**	**27 620 821**	**28 090 375**
Operational Regular Budget	**383 472 691**	**383 672 323**	**199 632**	**0.1%**	**390 194 752**	**1.7%**	**390 194 752**	**396 828 064**
Major Capital Investment Funding Requirements								
Capital Regular Budget	**6 199 632**	**6 000 000**	**(199 632)**	**(3.2%)**	**6 102 000**	**1.7%**	**6 102 000**	**6 205 734**
Total Agency Programmes	**389 672 323**	**389 672 323**	**(0)**	**(0.0%)**	**396 296 752**	**1.7%**	**396 296 752**	**403 033 798**
Reimbursable Work for Others	3 179 422	3 076 076	(103 346)	(3.3%)	3 128 370	1.7%	3 128 370	3 181 552
Total Regular Budget	**392 851 746**	**392 748 399**	**(103 347)**	**(0.0%)**	**399 425 122**	**1.7%**	**399 425 122**	**406 215 350**
Less Miscellaneous Income	3 729 422	3 311 076	(418 346)	(60.5%)	3 363 370	1.7%	3 363 370	3 416 552
Assessment on Member States	**389 122 323**	**389 437 323**	**315 000**	**0.1%**	**396 061 752**	**1.7%**	**396 061 752**	**402 798 798**

Table 2. The Regular Budget — Summary of Income

		2022			2023	
	2021 Budget	2022 Estimates at 2021 Prices	Variance 2022 compared to 2021	2022 Estimates at 2022 Prices	2023 Preliminary Estimates at 2022 Prices	2023 Preliminary Estimates at 2023 Prices
Operational Regular Budget[a]	382 922 691	383 437 323	514 632	389 959 752	389 959 752	396 593 064
Capital Regular Budget	6 199 632	6 000 000	(199 632)	6 102 000	6 102 000	6 205 734
Assessment on Member States	**389 122 323**	**389 437 323**	**315 000**	**396 061 752**	**396 061 752**	**402 798 798**
Miscellaneous Income						
Reimbursable Work for Others						
Printing Services	428 808	381 457	(47 351)	387 942	387 942	394 537
Medical Services	863 787	861 791	(1 996)	876 441	876 441	891 341
Nuclear Fusion Journal	405 721	390 041	(15 680)	396 672	396 672	403 415
Publications of the Agency – Other	41 331	41 331	0	42 034	42 034	42 748
Laboratory Income	258 318	220 000	(38 318)	223 740	223 740	227 544
Amounts Recoverable Under Safeguards Agreements	1 181 457	1 181 456	(1)	1 201 541	1 201 541	1 221 967
Subtotal Reimbursable Work for Others	**3 179 422**	**3 076 076**	**(103 346)**	**3 128 370**	**3 128 370**	**3 181 552**
Other						
Travel Rebates	200 000	135 000	(65 000)	135 000	135 000	135 000
Investment and Interest Income	350 000	100 000	(250 000)	100 000	100 000	100 000
Subtotal Other	**550 000**	**235 000**	**(315 000)**	**235 000**	**235 000**	**235 000**
Total Miscellaneous Income	**3 729 422**	**3 311 076**	**(418 346)**	**3 363 370**	**3 363 370**	**3 416 552**
Total Regular Budget Income	**392 851 746**	**392 748 399**	**(103 347)**	**399 425 122**	**399 425 122**	**406 215 350**

[a] Does not include estimates for Other Miscellaneous Income.

Table 3 (a). Total Resource Requirements for 2022 — By Programme and Major Programme (at 2022 Prices)

Programme/Major Programme	Regular Budget		Unfunded		TC Programme	Total
	Operational	Capital	Operational	Capital [a]		
1. Nuclear Power, Fuel Cycle and Nuclear Science						
Overall Management, Coordination and Common Activities	3 484 097	-	736 588	864 450	-	5 085 136
Nuclear Power	9 528 906	-	4 672 624	-	6 240 984	20 442 514
Nuclear Fuel Cycle and Waste Management	9 540 390	-	4 646 641	-	2 802 235	16 989 266
Capacity Building and Nuclear Knowledge for Sustainable Energy Development	10 978 838	-	5 201 627	-	1 941 232	18 121 697
Nuclear Science	9 258 348	-	860 486	50 850	6 604 708	16 774 392
Major Programme 1	**42 790 579**	**-**	**16 117 967**	**915 300**	**17 589 159**	**77 413 005**
2. Nuclear Techniques for Development and Environmental Protection						
Overall Management, Coordination and Common Activities	8 923 139	1 525 500	318 831	7 655 063	-	18 422 532
Food and Agriculture	12 161 632	-	19 331 569	-	16 025 288	47 518 489
Human Health	9 099 476	-	1 964 862	-	32 056 011	43 120 349
Water Resources	3 877 856	-	-	-	2 953 294	6 831 150
Marine Environment	4 871 178	-	1 109 063	-	4 504 783	10 485 024
Radiochemistry and Radiation Technology	4 582 024	-	378 980	-	12 805 391	17 766 395
Major Programme 2	**43 515 306**	**1 525 500**	**23 103 304**	**7 655 063**	**68 344 767**	**144 143 940**
3. Nuclear Safety and Security						
Overall Management, Coordination and Common Activities	4 133 419	305 100	3 221 302	150 880	-	7 810 700
Incident and Emergency Preparedness and Response	4 621 628	-	2 417 165	-	2 919 454	9 958 247
Safety of Nuclear Installations	11 093 052	-	8 038 424	-	7 468 166	26 599 642
Radiation and Transport Safety	7 921 421	-	2 271 968	-	10 771 597	20 964 986
Radioactive Waste Management and Environmental Safety	3 997 006	-	1 862 590	-	9 915 667	15 775 263
Nuclear Security	6 556 689	-	28 673 750	-	-	35 230 438
Major Programme 3	**38 323 213**	**305 100**	**46 485 198**	**150 880**	**31 074 884**	**116 339 274**
4. Nuclear Verification						
Overall Management, Coordination and Common Activities	14 780 452	-	924 139	-	-	15 704 591
Safeguards Implementation	135 775 821	1 017 000	31 573 307	5 289 315	-	173 655 444
Other Verification Activities	3 100 992	-	4 351 598	-	-	7 452 589
Major Programme 4	**153 657 265**	**1 017 000**	**36 849 044**	**5 289 315**	**-**	**196 812 624**
5. Policy, Management and Administration Services						
Policy, Management and Administration Services	84 287 568	3 254 400	5 901 609	9 512 719	601 690	103 557 987
Major Programme 5	**84 287 568**	**3 254 400**	**5 901 609**	**9 512 719**	**601 690**	**103 557 987**
6. Management of Technical Cooperation for Development						
Management of Technical Cooperation for Development	27 620 821	-	1 188 941	907 724	-	29 717 486
Major Programme 6	**27 620 821**	**-**	**1 188 941**	**907 724**	**-**	**29 717 486**
Total Agency Programmes	**390 194 752**	**6 102 000**	**129 646 064**	**24 431 001**	**117 610 500**	**667 984 317**
Reimbursable Work for Others	3 128 370	-	-	-	-	3 128 370
Total	**393 323 122**	**6 102 000**	**129 646 064**	**24 431 001**	**117 610 500**	**671 112 686**

[a] Includes €2.0 million to be funded from capital Carry Forward.

Table 3 (b). Total Resource Requirements for 2023 — By Programme and Major Programme (at 2023 Prices)

Programme/Major Programme	Regular Budget		Unfunded		TC Programme	Total
	Operational	Capital	Operational	Capital [a]		
1. Nuclear Power, Fuel Cycle and Nuclear Science						
Overall Management, Coordination and Common Activities	3 567 622	-	752 895	310 287	-	4 630 804
Nuclear Power	9 690 898	-	4 594 313	-	6 263 987	20 549 199
Nuclear Fuel Cycle and Waste Management	9 704 972	-	4 578 665	-	2 812 564	17 096 201
Capacity Building and Nuclear Knowledge for Sustainable Energy Development	11 141 525	-	5 254 682	-	1 948 387	18 344 595
Nuclear Science	9 413 002	-	879 285	775 717	6 629 052	17 697 057
Major Programme 1	**43 518 019**	**-**	**16 059 841**	**1 086 003**	**17 653 991**	**78 317 855**
2. Nuclear Techniques for Development and Environmental Protection						
Overall Management, Coordination and Common Activities	9 074 860	1 551 433	553 605	7 785 199	-	18 965 098
Food and Agriculture	12 368 380	-	21 492 794	-	16 084 356	49 945 529
Human Health	9 254 169	-	1 152 836	-	32 174 166	42 581 171
Water Resources	3 943 781	-	-	-	2 964 179	6 907 960
Marine Environment	4 953 989	-	1 127 917	-	4 521 387	10 603 293
Radiochemistry and Radiation Technology	4 659 888	-	385 423	-	12 852 590	17 897 901
Major Programme 2	**44 255 066**	**1 551 433**	**24 712 575**	**7 785 199**	**68 596 678**	**146 900 952**
3. Nuclear Safety and Security						
Overall Management, Coordination and Common Activities	4 158 874	310 287	3 279 777	58 676	-	7 807 614
Incident and Emergency Preparedness and Response	4 695 381	-	2 271 157	-	2 930 215	9 896 753
Safety of Nuclear Installations	11 248 132	-	7 713 366	-	7 495 693	26 457 191
Radiation and Transport Safety	8 070 435	-	2 151 688	268 915	10 811 300	21 302 337
Radioactive Waste Management and Environmental Safety	4 046 134	-	1 845 196	-	9 952 215	15 843 545
Nuclear Security	6 755 751	-	29 475 644	-	-	36 231 396
Major Programme 3	**38 974 708**	**310 287**	**46 736 828**	**327 591**	**31 189 422**	**117 538 836**
4. Nuclear Verification						
Overall Management, Coordination and Common Activities	14 896 868	-	952 009	-	-	15 848 878
Safeguards Implementation	138 227 186	1 034 289	28 481 997	5 022 507	-	172 765 979
Other Verification Activities	3 145 385	-	4 425 575	-	-	7 570 960
Major Programme 4	**156 269 439**	**1 034 289**	**33 859 581**	**5 022 507**	**-**	**196 185 816**
5. Policy, Management and Administration Services						
Policy, Management and Administration Services	85 720 457	3 309 725	5 937 625	7 193 480	603 908	102 765 195
Major Programme 5	**85 720 457**	**3 309 725**	**5 937 625**	**7 193 480**	**603 908**	**102 765 195**
6. Management of Technical Cooperation for Development						
Management of Technical Cooperation for Development	28 090 375	-	1 433 833	1 412 585	-	30 936 794
Major Programme 6	**28 090 375**	**-**	**1 433 833**	**1 412 585**	**-**	**30 936 794**
Total Agency Programmes	**396 828 064**	**6 205 734**	**128 740 283**	**22 827 367**	**118 044 000**	**672 645 447**
Reimbursable Work for Others	3 181 552	-	-	-	-	3 181 552
Total	**400 009 616**	**6 205 734**	**128 740 283**	**22 827 367**	**118 044 000**	**675 826 999**

[a] Includes €2.1 million to be funded from capital Carry Forward.

I.3 Programme and Budget Overview by Major Programme

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

48. Major Programme 1 supports Member States to enhance the contribution of nuclear technology to peace, health and prosperity, by providing scientific and technical support, guidance and services for the development and deployment of nuclear power and research reactor technology, including their nuclear fuel cycles and nuclear fuel cycle facilities, for radioactive waste management, decommissioning and environmental remediation, energy system analysis and energy planning, and nuclear knowledge and information management. It also supports advancements in nuclear science, including nuclear fusion research and technology, nuclear and atomic data, accelerators and neutron sources, and nuclear instrumentation.

49. To mitigate the effects of climate change, nuclear power could become an integral component in the national energy mix of Member States that opt for it, supporting energy security and the achievement of relevant SDGs, in particular SDG 7 (on affordable and clean energy) and SDG 13 (on climate action). The Secretariat will continue to support interested Member States in assessing their future energy needs and in evaluating and understanding the potential for nuclear power to be part of their energy strategies. The Major Programme provides support for Member States considering, embarking on or expanding nuclear power programmes. It also supports Member States with operating nuclear power plants (NPPs) in the areas of enhancing operating performance; life management; and 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 reactors, and innovative reactor systems and associated fuel cycles, along with the non-electric applications of nuclear power and cogeneration technologies.

50. Major Programme 1 supports Member States in uranium exploration, mining and milling; and in fuel cycle activities, including those related to spent fuel integrity, design vulnerabilities, defueling and storage. Technical assistance will continue to be provided for radioactive waste management, decommissioning of nuclear facilities and management of disused sealed radioactive sources, as well as for environmental remediation. The Major Programme will continue to support Member States with an interest in building, operating or accessing research reactors — including via the IAEA-designated International Centre based on Research Reactor scheme — and in improving their utilization. Upon Member States' request, support for transitioning from the use of high enriched uranium to low enriched uranium in research reactors will continue. Support will also continue in the field of nuclear knowledge management, including information management, dissemination and preservation.

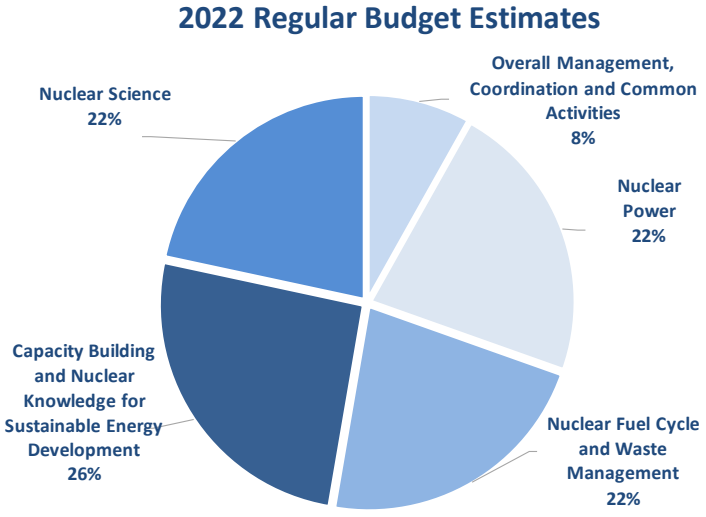
51. The Agency will remain a reliable source of nuclear, atomic and molecular data. Training and facilitation of experiments using various types of particle accelerator and other nuclear instrumentation will continue. The Major Programme will continue to support Member States in their fusion research and development activities and in the exchange of knowledge, including cooperation with the ITER Organization. Collaboration with the Abdus Salam International Centre for Theoretical Physics, in Trieste, Italy, to support education and training for scientists, especially those from developing countries, will focus more on the areas of relevance to the Agency such as basic and applied nuclear sciences and nuclear energy.

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		2021 Budget	2022 Estimates at 2021 prices	2022 Variance compared to 2021 EUR	2022 Variance compared to 2021 %	2023 Preliminary Estimates at 2021 prices	2023 Variance compared to 2022 EUR	2023 Variance compared to 2022 %
1.0 Overall Management, Coordination and Common Activities		**3 360 351**	**3 425 858**	***65 507***	***1.9%***	**3 449 347**	***23 489***	***0.7%***
1.1.1 Strengthening Integrated Engineering Support for Nuclear Power Programmes		1 687 478	1 679 356	*(8 122)*	*(0.5%)*	1 679 356	-	-
1.1.2 Management and Human Resource Development for Nuclear Power Programmes		1 066 184	1 054 185	*(11 999)*	*(1.1%)*	1 054 185	-	-
1.1.3 Integrated Support for Nuclear Power Programme Infrastructure Development		2 725 882	2 725 883	*1*	*0.0%*	2 725 883	*0*	*0.0%*
1.1.4 International Project on Innovative Nuclear Reactors and Fuel Cycles		1 197 084	1 197 204	*119*	*0.0%*	1 197 205	*1*	*0.0%*
1.1.5 Technology Development for Advanced Reactors and Non-Electric Applications of Nuclear Power		2 562 995	2 712 996	*150 001*	*5.9%*	2 712 996	*(1)*	*(0.0%)*
1.1 Nuclear Power Total		**9 239 624**	**9 369 623**	***129 999***	***1.4%***	**9 369 623**	***0***	***0.0%***
1.2.1 Uranium Resources and Processing		1 193 262	1 100 650	*(92 612)*	*(7.8%)*	1 124 208	*23 558*	*2.1%*
1.2.2 Nuclear Power Reactor Fuel and Fuel Cycle Facilities		1 071 306	1 070 629	*(678)*	*(0.1%)*	1 061 743	*(8 886)*	*(0.8%)*
1.2.3 Management of Spent Fuel from Nuclear Power Reactor and Radioactive Material Transportation		1 297 038	1 172 971	*(124 067)*	*(9.6%)*	1 161 635	*(11 335)*	*(1.0%)*
1.2.4 Radioactive Waste Management		2 894 484	2 932 442	*37 959*	*1.3%*	2 932 445	*2*	*0.0%*
1.2.5 Decommissioning and Environmental Remediation		1 458 121	1 611 845	*153 724*	*10.5%*	1 609 687	*(2 158)*	*(0.1%)*
1.2.6 Research Reactors*		-	1 492 378	*1 492 378*	-	1 493 513	*1 135*	*0.1%*
1.2 Nuclear Fuel Cycle and Waste Management Total		**7 914 211**	**9 380 914**	***1 466 703***	***18.5%***	**9 383 230**	***2 316***	***0.0%***
1.3.1 Energy Modelling, Data and Capacity Building		1 979 382	1 965 298	*(14 084)*	*(0.7%)*	1 960 723	*(4 575)*	*(0.2%)*
1.3.2 Energy Economy Environment (3E) Analysis		1 645 422	1 653 121	*7 698*	*0.5%*	1 739 275	*86 154*	*5.2%*
1.3.3 Nuclear Knowledge Management (NKM)		2 429 289	2 377 286	*(52 004)*	*(2.1%)*	2 377 286	-	-
1.3.4 Nuclear Information		4 870 979	4 799 613	*(71 366)*	*(1.5%)*	4 694 874	*(104 739)*	*(2.2%)*
1.3 Capacity Building and Nuclear Knowledge for Sustainable Energy Development Total		**10 925 073**	**10 795 317**	***(129 755)***	***(1.2%)***	**10 772 158**	***(23 159)***	***(0.2%)***
1.4.1 Atomic and Nuclear Data		3 107 638	3 108 039	*401*	*0.0%*	3 108 032	*(7)*	*(0.0%)*
1.4.2 Research and Applications with Accelerators and Neutron Sources*		-	1 696 659	*1 696 659*	-	1 694 294	*(2 365)*	*(0.1%)*
1.4.2 OLD Research Reactors*		1 865 773	-	*(1 865 773)*	*(100.0%)*	-	-	-
1.4.3 Nuclear Instrumentation*		2 645 267	1 281 288	*(1 363 978)*	*(51.6%)*	1 281 288	-	-
1.4.4 Nuclear Fusion Research and Technology		878 262	878 259	*(3)*	*(0.0%)*	878 224	*(35)*	*(0.0%)*
1.4.5 Support to the Abdus Salam International Centre for Theoretical Physics (ICTP)		2 139 101	2 139 342	*241*	*0.0%*	2 139 102	*(240)*	*(0.0%)*
1.4 Nuclear Science Total		**10 636 041**	**9 103 587**	***(1 532 455)***	***(14.4%)***	**9 100 940**	***(2 646)***	***(0.0%)***
Total for Nuclear Power, Fuel Cycle and Nuclear Science		**42 075 299**	**42 075 299**	***0***	***0.0%***	**42 075 299**	***(0)***	***(0.0%)***

* Former Subprogramme 1.4.2 "Research Reactors" has been moved from Programme 1.4 to Programme 1.2 as Subprogramme 1.2.6 "Research Reactors". Former Subprogramme 1.4.3 "Accelerator Applications and Nuclear Instrumentation" has been split into two Subprogrammes, i.e. Subprogramme 1.4.2 "Research and Applications with Accelerators and Neutron Sources" and Subprogramme 1.4.3 "Nuclear Instrumentation".



Major Programme 2: Nuclear Techniques for Development and Environmental Protection

52. Major Programme 2 aims at fostering the development of innovative nuclear science and technology that can contribute to the SDGs and at providing technical support to transfer validated technologies to Member States. The Major Programme supports the peaceful uses of nuclear science and applications, providing Member States with science-based advice, educational materials, standards, guidance on best practices and reference materials, and technical documents. Major Programme 2 encompasses activities in five thematic areas: food and agriculture, human health, water resources, the marine environment, and radiochemistry and radiation technology. The assistance rendered to Member States in their efforts to address the COVID-19 pandemic has highlighted the valuable contribution of nuclear science and technology. The application of nuclear science and technology is growing in areas such as health care, environmental protection, materials, industry, food and agriculture and water resources, as well as in addressing global challenges, such as climate change, zoonotic diseases and plastics pollution.

53. Major Programme 2 is served by 12 laboratories that are unique in the United Nations system; the Agency is the only international organization with fit-for-purpose laboratories that assist its Member States in enhancing their capacity to use nuclear applications to reach their development goals, including SDG targets. The laboratories need to remain capable of meeting the increasing and evolving needs of Member States. After the success of the Renovation of the Nuclear Applications Laboratories (ReNuAL/ ReNuAL+) projects, ReNuAL 2 phase of the project has been launched to complete the modernization of the Seibersdorf laboratories. Enhancing quality assurance and maximizing the use of the new facilities will help the Agency provide enhanced services to Member States. The Agency's laboratories in Vienna, Seibersdorf and Monaco remain an essential vehicle for programme delivery. The Agency's research and development (R&D) activities and its vast number of coordinated research projects (CRPs) contribute to a diverse range of issues. While the Major Programme assists Member States in building their capacity, knowledge and expertise, it also contributes to increasing R&D capacity in Member States through its CRPs.

54. The Agency's Collaborating Centre scheme remains a valuable arrangement for working jointly with Member States' institutions. Efforts will be made to make more efficient use of the scheme for more cost-effective implementation of the Major Programme through arrangements with Collaborating Centres.

55. Partnerships remain an important way to strengthen programmatic activities and engage with Member States. Major Programme 2 will continue to enhance key partnerships with United Nations system organizations such as the Food and Agriculture Organization of the United Nations, the World Health Organization, the United Nations Environment Programme and the World Organisation for Animal Health. The Major Programme hosts several internationally recognized databases and networks of Member States' scientific and research institutions, such as the network of Analytical Laboratories for the Measurement of Environmental Radioactivity and the Veterinary Diagnostic Laboratory Network.

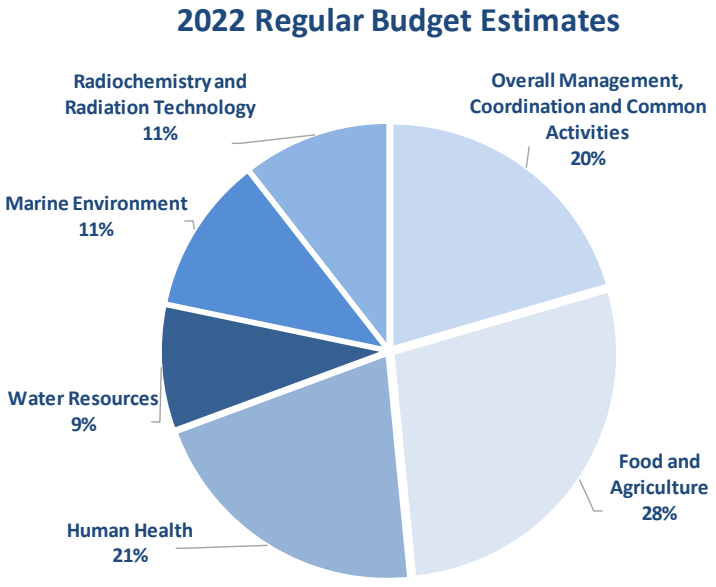
56. Education and training will continue to be fundamental to this Major Programme. To reach a wider audience and achieve greater cost savings, the development of e-learning tools and online education platforms such as webinars will continue to be emphasized. To increase public awareness of the work and contributions of this Major Programme, efforts initiated in previous budget cycles aimed at developing specific communication strategies will be carried on.

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		2021 Budget	2022 Estimates at 2021 prices	2022 Variance compared to 2021 EUR	2022 Variance compared to 2021 %	2023 Preliminary Estimates at 2021 prices	2023 Variance compared to 2022 EUR	2023 Variance compared to 2022 %
2.0 Overall Management, Coordination and Common Activities	↑	**8 413 870**	**8 773 981**	***360 111***	***4.3%***	**8 774 008**	***27***	***0.0%***
2.1.1 Sustainable Land and Water Management	↓	2 248 743	2 190 276	*(58 467)*	*(2.6%)*	2 190 276	*0*	*0.0%*
2.1.2 Sustainable Intensification of Livestock Production Systems	↓	2 354 105	2 292 898	*(61 207)*	*(2.6%)*	2 292 898	-	-
2.1.3 Improvement of Food Safety and Food Control Systems	↓	1 923 309	1 873 303	*(50 006)*	*(2.6%)*	1 873 303	-	-
2.1.4 Sustainable Control of Major Insect Pests	↓	3 728 686	3 631 740	*(96 946)*	*(2.6%)*	3 631 740	-	-
2.1.5 Crop Improvement for Intensification of Agricultural Production Systems	–	2 003 498	1 970 124	*(33 374)*	*(1.7%)*	1 970 124	*(0)*	*(0.0%)*
2.1 Food and Agriculture Total	↓	**12 258 340**	**11 958 340**	***(300 000)***	***(2.4%)***	**11 958 340**	**-**	**-**
2.2.1 Nutrition for Improved Human Health	–	1 824 638	1 824 641	*4*	*0.0%*	1 799 641	*(25 000)*	*(1.4%)*
2.2.2 Nuclear Medicine and Diagnostic Imaging	–	2 039 599	2 071 098	*31 500*	*1.5%*	2 054 148	*(16 950)*	*(0.8%)*
2.2.3 Radiation Oncology and Cancer Treatment	–	1 964 155	1 932 579	*(31 576)*	*(1.6%)*	1 932 642	*63*	*0.0%*
2.2.4 Dosimetry and Medical Physics for Imaging and Therapy	–	3 160 976	3 119 053	*(41 923)*	*(1.3%)*	3 160 941	*41 888*	*1.3%*
2.2 Human Health Total	–	**8 989 368**	**8 947 371**	***(41 997)***	***(0.5%)***	**8 947 373**	***2***	***0.0%***
2.3.1 Isotope Data Networks for Hydrology and Climate Studies	–	1 302 672	1 276 808	*(25 863)*	*(2.0%)*	1 291 402	*14 594*	*1.1%*
2.3.2 Isotope Based Assessment and Management of Water Resources	↑	1 161 399	1 232 153	*70 753*	*6.1%*	1 215 454	*(16 699)*	*(1.4%)*
2.3.3 Radioisotope Applications for Hydrology	↓	1 349 108	1 304 074	*(45 034)*	*(3.3%)*	1 306 180	*2 106*	*0.2%*
2.3 Water Resources Total	–	**3 813 179**	**3 813 035**	***(144)***	***(0.0%)***	**3 813 036**	***1***	***0.0%***
2.4.1 Nuclear Techniques to Understand Climate and Environmental Changes	↓	1 601 377	1 553 938	*(47 439)*	*(3.0%)*	1 548 670	*(5 268)*	*(0.3%)*
2.4.1 OLD IAEA Reference Products for Science and Trade*	↓	2 600 812	-	*(2 600 812)*	*(100.0%)*	-	-	-
2.4.2 Nuclear Techniques to Monitor and Assess Pollution	↑	823 188	1 340 880	*517 692*	*62.9%*	1 383 657	*42 777*	*3.2%*
2.4.3 Analytical Techniques to Protect Biodiversity and Ecosystem Services	↑	1 774 375	1 894 934	*120 559*	*6.8%*	1 857 425	*(37 509)*	*(2.0%)*
2.4 Marine Environment Total	↓	**6 799 753**	**4 789 753**	***(2 010 000)***	***(29.6%)***	**4 789 753**	***0***	***0.0%***
2.5.1 Radioisotope Products for Cancer Management and Non-communicable Diseases	↓	1 181 288	1 069 365	*(111 923)*	*(9.5%)*	1 111 319	*41 954*	*3.9%*
2.5.2 Radiation Technology Applications in Healthcare, Industries and Environment	↑	1 332 115	1 443 297	*111 182*	*8.3%*	1 401 342	*(41 955)*	*(2.9%)*
2.5.3 Terrestrial Environmental Radiochemistry*	↑	-	1 992 770	*1 992 770*	-	1 992 741	*(29)*	*(0.0%)*
2.5 Radiochemistry and Radiation Technology Total	↑	**2 513 403**	**4 505 432**	***1 992 029***	***79.3%***	**4 505 402**	***(30)***	***(0.0%)***
Total for Nuclear Techniques for Development and Environmental Protection	–	**42 787 912**	**42 787 912**	***0***	***0.0%***	**42 787 912**	***0***	***0.0%***

* Activities under Subprogramme 2.4.1 IAEA Reference Products for Science and Trade have been moved to a new Subprogramme 2.5.3 Terrestrial Environmental Radiochemistry.



Major Programme 3: Nuclear Safety and Security

57. 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 supports Member States in meeting the demand for a higher level of safety at the growing number of nuclear installations — including uranium mining facilities — and at existing NPPs and research reactors, whose average age continues to increase. It also supports Member States in addressing 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 nuclear fuel. In conducting these activities, the Agency fosters a strong safety and security culture.

58. Through Major Programme 3, the Agency performs its statutory function of establishing safety standards and providing for their application in Member States, upon request, as well as to its own operations. Major Programme 3 assists Member States in building national capacities by promoting international cooperation and by transferring nuclear safety knowledge from States with mature nuclear energy and nuclear applications programmes to States with emerging nuclear energy and nuclear applications programmes through knowledge networks. The activities under this Major Programme will continue to cover the strengthening of nuclear, radiation, transport and waste safety in a comprehensive manner, including design safety, external hazard assessment, safety culture, communication on safety, severe accident management, post-accident remediation and transition to recovery, as well as aspects related to NPP operating life extension, including organizational and human performance, decommissioning of facilities, disposal of low and 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.

59. 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 also focuses on providing assistance in developing and strengthening national and international capacities to prepare to respond effectively to, and to mitigate, the consequences of such an emergency. The Incident and Emergency Centre, by maintaining the current level of the position of the Head of Centre, will continue serving the growing demands from Member States.

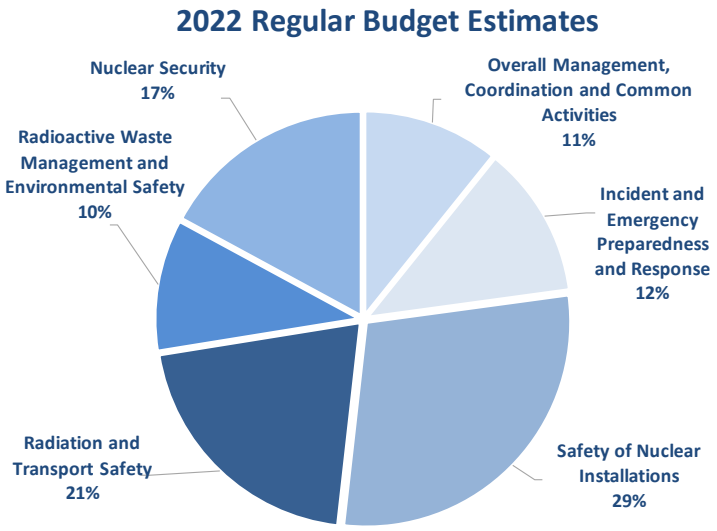
60. The Agency is the global focal point for international preparedness for and response to nuclear and radiological incidents or emergencies and implements its response roles under this Major Programme.

61. During the biennium, the Agency will also continue to analyse Member State experience in ensuring safety, security and reliable operation of nuclear and radiation facilities and activities during the COVID-19 pandemic and perform a gap analysis of the possible implications for the safety standards and security guidance. Radiation safety and nuclear security regulations for the Agency’s own activities will continue to be strengthened. Major Programme 3 will continue to focus on enhancing timely coordination within this Major Programme and with other Major Programmes to build synergies, increase effectiveness and efficiency, and reduce potential duplication in the planning and implementation of activities.

Table 6. Major Programme 3 — Nuclear Safety and Security

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

Subprogramme/Programme		2021 Budget	2022 Estimates at 2021 prices	2022 Variance compared to 2021 EUR	2022 Variance compared to 2021 %	2023 Preliminary Estimates at 2021 prices	2023 Variance compared to 2022 EUR	2023 Variance compared to 2022 %
3.0 Overall Management, Coordination and Common Activities		**4 147 204**	**4 064 325**	***(82 879)***	***(2.0%)***	**4 020 998**	***(43 327)***	***(1.1%)***
3.1.1 National and International Emergency Preparedness	↑	1 770 317	1 806 403	*36 086*	*2.0%*	1 806 404	*1*	*0.0%*
3.1.2 IAEA IES and Operational Arrangements with MSs and IOs		2 769 402	2 737 970	*(31 432)*	*(1.1%)*	2 733 315	*(4 655)*	*(0.2%)*
3.1 Incident and Emergency Preparedness and Response Total		**4 539 719**	**4 544 373**	***4 654***	***0.1%***	**4 539 719**	***(4 655)***	***(0.1%)***
3.2.1 Governmental Regulatory Framework and Safety Infrastructure Development		3 232 478	3 228 538	*(3 940)*	*(0.1%)*	3 502 488	*273 950*	*8.5%*
3.2.2 Safety Assessment of Nuclear Installations		2 306 775	2 312 157	*5 383*	*0.2%*	2 219 410	*(92 748)*	*(4.0%)*
3.2.3 Safety and Protection Against External Hazards	↓	1 210 890	1 182 181	*(28 709)*	*(2.4%)*	1 125 927	*(56 254)*	*(4.8%)*
3.2.4 Safe Operation of Nuclear Power Plants		2 662 621	2 709 049	*46 428*	*1.7%*	2 605 310	*(103 739)*	*(3.8%)*
3.2.5 Safety of Research Reactor and Fuel Cycle Facilities		1 461 420	1 475 697	*14 277*	*1.0%*	1 422 097	*(53 600)*	*(3.6%)*
3.2 Safety of Nuclear Installations Total		**10 874 184**	**10 907 622**	***33 438***	***0.3%***	**10 875 231**	***(32 390)***	***(0.3%)***
3.3.1 Radiation Safety and Monitoring	↑	4 407 255	4 554 070	*146 815*	*3.3%*	4 494 583	*(59 487)*	*(1.3%)*
3.3.2 Regulatory Infrastructure and Transport Safety	↓	3 380 261	3 234 938	*(145 323)*	*(4.3%)*	3 308 299	*73 361*	*2.3%*
3.3 Radiation and Transport Safety Total		**7 787 516**	**7 789 008**	***1 492***	***0.0%***	**7 802 882**	***13 874***	***0.2%***
3.4.1 Safety of Spent Fuel and Radioactive Waste Management		1 831 020	1 815 268	*(15 752)*	*(0.9%)*	1 798 051	*(17 217)*	*(0.9%)*
3.4.2 Safety of Decommissioning, Remediation and Environmental Releases		2 096 300	2 114 925	*18 624*	*0.9%*	2 113 944	*(980)*	*(0.0%)*
3.4 Radioactive Waste Management and Environmental Safety Total		**3 927 320**	**3 930 193**	***2 872***	***0.1%***	**3 911 995**	***(18 197)***	***(0.5%)***
3.5.1 Information Management	↓	1 516 687	1 456 657	*(60 030)*	*(4.0%)*	1 347 028	*(109 629)*	*(7.5%)*
3.5.2 Nuclear Security of Materials and Facilities	↑	1 804 179	1 857 110	*52 931*	*2.9%*	1 841 835	*(15 275)*	*(0.8%)*
3.5.3 Nuclear Security of Materials outside of Regulatory Control		1 603 088	1 625 818	*22 730*	*1.4%*	1 647 481	*21 663*	*1.3%*
3.5.4 Programme Development and International Cooperation		1 482 712	1 507 503	*24 792*	*1.7%*	1 695 439	*187 936*	*12.5%*
3.5 Nuclear Security Total		**6 406 666**	**6 447 088**	***40 422***	***0.6%***	**6 531 783**	***84 695***	***1.3%***
Total for Nuclear Safety and Security		**37 682 609**	**37 682 609**	***0***	***0.0%***	**37 682 609**	***(0)***	***(0.0%)***



Major Programme 4: Nuclear Verification

62. 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.

63. 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, such as the collection and evaluation of safeguards relevant information; the development of safeguards approaches; and the planning, conduct and evaluation of safeguards activities, including the installation of safeguards instrumentation, in-field verification activities 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.

64. For the 2022–2023 period, the main challenges for Major Programme 4 include:

- Meeting increasing safeguards responsibilities effectively and efficiently;
- Enhancing business continuity and disaster recovery capabilities to respond to large-scale external events, such as pandemics, in order to ensure that critical safeguards verification activities are carried out without interruption, including through the strengthening of the Agency's existing regional offices;
- Implementing the necessary verification and monitoring of the nuclear-related commitments of the Islamic Republic of Iran, as set out in the Joint Comprehensive Plan of Action, in light of United Nations Security Council resolution 2231 (2015);
- Preparing to safeguard new types of nuclear facilities and more complex or larger-scale nuclear facilities, such as the Mixed Oxide Fuel Fabrication Plant in Japan, and the encapsulation plant and geological repository in Finland and Sweden, including through securing sources of financing;
- Planning for and conducting verification activities at an increasing number of nuclear facilities that are being decommissioned;
- Addressing areas of difficulty in safeguards implementation, including by providing additional support to State systems of accounting for and control of nuclear material through the Agency's Comprehensive Capacity-Building Initiative (COMPASS);
- Strengthening the effectiveness and improving the efficiency of the Agency's safeguards by facilitating the conclusion of comprehensive safeguards agreements and additional protocols;
- Promoting the rigorous implementation of the 2005 Board of Governors decisions regarding small quantities protocols based on the original standard text, with the aim of enabling the States concerned to amend or rescind such protocols, as applicable;
- Intensifying the Agency's readiness to play its essential role, in accordance with its mandate, in monitoring and verifying the nuclear programme of the Democratic People's Republic of Korea;
- Ensuring the availability of a safeguards workforce with the necessary skills and expertise to enhance cost-effectiveness, and maintaining critical institutional knowledge;
- Maintaining and enhancing the modernized information technology (IT) infrastructure,

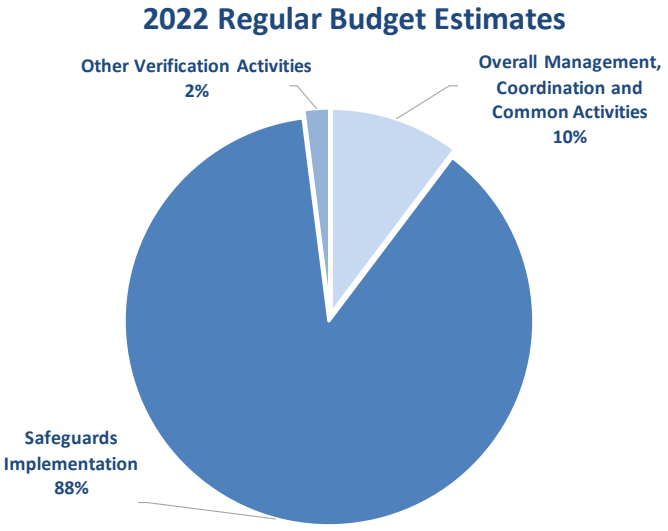
including the technical systems, services and instrumentation that underpin effective and efficient safeguards implementation and provide for, inter alia, the highest standards of information security;

- Securing predictable sources of funding in order to continue delivering high-quality safeguards services and implementing effective safeguards in States, including funding for the safeguards equipment necessary to implement effective and efficient safeguards approaches, and encouraging Member States and outside donors to provide co-funding or in-kind contributions to support the implementation of relevant activities, as appropriate; and
- 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.

Table 7. Major Programme 4 — Nuclear Verification

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

Subprogramme/Programme	2021 Budget	2022 Estimates at 2021 prices	2022 Variance compared to 2021 EUR	2022 Variance compared to 2021 %	2023 Preliminary Estimates at 2021 prices	2023 Variance compared to 2022 EUR	2023 Variance compared to 2022 %
4.0 Overall Management, Coordination and Common Activities	**14 351 436**	**14 533 385**	***181 949***	***1.3%***	**14 403 004**	***(130 381)***	***(0.9%)***
4.1.1 Concepts and Planning	9 023 435	8 563 860	*(459 575)*	*(5.1%)*	8 507 241	*(56 619)*	*(0.7%)*
4.1.2 Safeguards Implementation for States under the Responsibility of Division SGOA	17 501 989	17 398 216	*(103 773)*	*(0.6%)*	17 397 111	*(1 105)*	*(0.0%)*
4.1.3 Safeguards Implementation for States under the Responsibility of Division SGOB	25 931 877	25 925 901	*(5 976)*	*(0.0%)*	25 925 902	*1*	*0.0%*
4.1.4 Safeguards Implementation for States under the Responsibility of Division SGOC	17 899 480	17 783 568	*(115 911)*	*(0.6%)*	17 703 097	*(80 472)*	*(0.5%)*
4.1.5 Information Analysis	13 041 834	13 043 468	*1 634*	*0.0%*	13 041 834	*(1 634)*	*(0.0%)*
4.1.6 Provision and Development of Safeguards Instrumentation	22 357 614	22 193 471	*(164 143)*	*(0.7%)*	22 389 673	*196 202*	*0.9%*
4.1.7 Analytical Services	11 286 792	11 110 853	*(175 939)*	*(1.6%)*	11 110 853	-	-
4.1.8 Special Projects	584 697	1 435 372	*850 675*	*145.5%*	1 435 372	-	-
4.1.9 Safeguards Information and Communication Technology (ICT)	15 872 703	16 051 508	*178 805*	*1.1%*	16 133 563	*82 055*	*0.5%*
4.1 Safeguards Implementation Total	**133 500 420**	**133 506 215**	***5 795***	***0.0%***	**133 644 644**	***138 429***	***0.1%***
4.2.1 Other Verification Activities	3 236 900	3 049 156	*(187 744)*	*(5.8%)*	3 041 108	*(8 048)*	*(0.3%)*
4.2 Other Verification Activities Total	**3 236 900**	**3 049 156**	***(187 744)***	***(5.8%)***	**3 041 108**	***(8 048)***	***(0.3%)***
Total for Nuclear Verification	**151 088 757**	**151 088 757**	***0***	***0.0%***	**151 088 757**	***(0)***	***(0.0%)***



Major Programme 5: Policy, Management and Administration Services

65. Under the leadership, direction and authority of the Director General, the Agency's programmes seek to achieve the objectives of the Agency's Member States. This requires effective guidance on priorities; quality assurance; interactions with Member States; services provided to the Policy-Making Organs, commensurate with evolving demands, including interpretation; development and implementation of programmes; results based management, including performance assessment and risk management; gender mainstreaming; partnerships and resource mobilization; and the wider dissemination of information within the Secretariat, between the Secretariat and Member States, and for the benefit of the general public and the media. Furthermore, an independent Ethics function continues to promote and sustain an ethical organizational culture of integrity, accountability and transparency, and continues to assist the Director General in ensuring that all staff members observe and perform their functions consistent with the highest standards of integrity.

66. To help achieve the Agency's mandate, a wide range of administrative, managerial, oversight and legal services continues to support Agency programmes, enabling efficient and effective programme delivery to Member States.

67. To ensure sustainable operation of facilities maintained or used by the Agency, such as its laboratories and the Vienna International Centre (VIC), further resources are needed, including site security, site-wide engineering and infrastructure functions at Seibersdorf. Approximately 25% of the Major Programme 5 budget is related to the cost of common security services and buildings management of the VIC. Adequate funding is needed to cover the ageing infrastructure of the VIC; however, the Agency's contribution to this common buildings management service must also be balanced within the current budget climate of having to 'do more with same'.

68. To meet the increase in demand of services within given resources, Major Programme 5 remains strongly focused on efficiencies and productivity. It continues to proactively optimize the delivery of its support services by streamlining processes, adopting new technologies and leveraging existing investments. As a key enabler for many support services, the implementation of the Agency-wide Information System for Programme Support (AIPS) continues to focus on efficiencies through the automation of processes. Recent examples of building sustainable efficiencies are the standardization of printing processes, an expanded use of new cloud services and the automation of transactions in financial services.

69. Adopting more agile working methods and services is not only important to improve the responsiveness and operation of the support services, but directly benefits the entire Agency. The experience gained and the tools put in place in 2020, including adapting to virtual meetings, are an example of how the adoption of new technologies can be leveraged to improve efficiencies across the Agency, e.g. by reducing the need for travel.

70. New innovative approaches increase reliance on IT and also require information security. It is therefore necessary to continue to build and sustain a secure IT infrastructure and to ensure that robust and appropriate measures are in place to address severe and escalating threats.

71. Procurement Services will continue to explore innovative, efficient options to ensure continued improvements, including emergency procurement to maintain the Agency capacity to deliver rapid response assistance to Member States, as during the COVID-19 pandemic.

72. Human resources management will focus on identifying further efficiencies to improve the agility and effectiveness of the work force at the Agency, bearing in mind the technical competence of staff and gender balance.

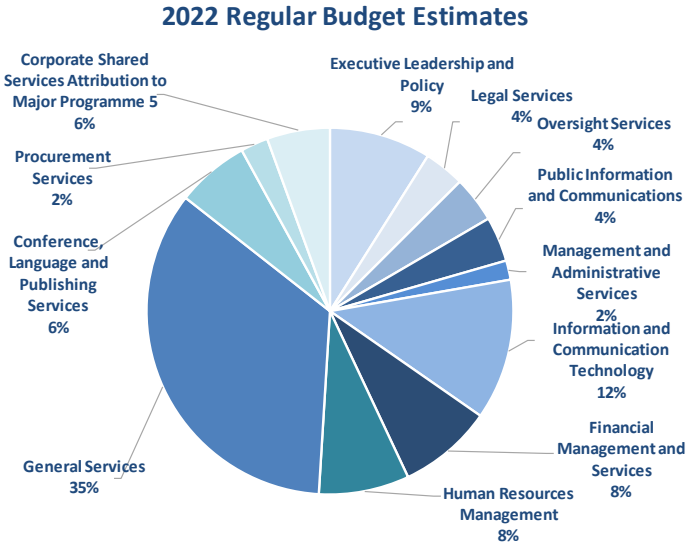
73. The Agency will continue to strengthen accountability, efficiency and effectiveness through the activities of OIOS — including audits, evaluations, investigations and the provision of advisory support to senior management and Member States — as well as through the Secretariat's support to the External Auditors.

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

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

Subprogramme			2021 Budget	2022 Estimates at 2021 prices	2022 Variance compared to 2021 EUR	2022 Variance compared to 2021 %	2023 Preliminary Estimates at 2021 prices	2023 Variance compared to 2022 EUR	2023 Variance compared to 2022 %
5.0.1	Executive Leadership and Policy*	↓	8 676 941	7 608 418	*(1 068 523)*	*(12.3%)*	7 655 670	*47 252*	*0.6%*
5.0.2	Legal Services	=	2 950 643	2 950 643	*(0)*	*(0.0%)*	2 950 642	*(1)*	*(0.0%)*
5.0.3	Oversight Services	=	3 363 995	3 363 972	*(23)*	*(0.0%)*	3 363 972	-	-
5.0.4	Public Information and Communications	=	3 272 767	3 272 767	*(1)*	*(0.0%)*	3 272 768	*1*	*0.0%*
5.0.5	Management and Administrative Services*	↑	-	1 406 884	*1 406 884*	-	1 406 884	-	-
5.0.6	Information and Communication Technology	=	10 256 557	10 270 108	*13 550*	*0.1%*	10 270 128	*21*	*0.0%*
5.0.7	Financial Management and Services	↓	7 208 212	6 880 887	*(327 325)*	*(4.5%)*	6 840 217	*(40 670)*	*(0.6%)*
5.0.8	Human Resources Management	=	6 680 022	6 586 825	*(93 197)*	*(1.4%)*	6 668 656	*81 831*	*1.2%*
5.0.9	General Services	=	28 404 513	28 621 230	*216 717*	*0.8%*	28 565 019	*(56 211)*	*(0.2%)*
5.0.10	Conference, Language and Publishing Services	=	5 330 499	5 321 972	*(8 527)*	*(0.2%)*	5 299 899	*(22 073)*	*(0.4%)*
5.0.11	Procurement Services	↓	2 099 579	1 995 896	*(103 683)*	*(4.9%)*	2 093 916	*98 020*	*4.9%*
5.S	Corporate Shared Services Attribution to Major Programme 5	↑	4 435 270	4 599 030	*163 760*	*3.7%*	4 490 861	*(108 169)*	*(2.4%)*
Total for Policy, Management and Administration Services		=	**82 678 999**	**82 878 631**	***199 632***	***0.2%***	**82 878 631**	***0***	***0.0%***

* Activities related to management and administrative services previously under Subprogramme 5.0.1 Executive Leadership and Policy have been moved to Subprogramme 5.0.5 Management and Administrative Services.



Major Programme 6: Management of Technical Cooperation for Development

74. Major Programme 6 enables the management, development and implementation of technical cooperation (TC) projects within the framework of the biennial TCP. The TCP is designed to respond to relevant developmental priorities of Member States through effective programme management, in accordance with its strategic objective, and will continue to serve as the major vehicle for the transfer of nuclear science and technology and to build capacity — with an emphasis on human resource development — in nuclear applications in Member States, contributing to Member State efforts to achieve the SDGs.

75. The TCP is a cross-cutting Agency mechanism that supports Member States in addressing their sustainable development needs. It facilitates partnership building, supports knowledge sharing, and builds and reinforces scientific networking through national, regional and interregional projects funded from the Technical Cooperation Fund, extrabudgetary resources and in-kind contributions. TC projects are developed through a consultative process with Member States and address national development priorities outlined in Country Programme Frameworks (CPFs) and national development plans, as well as issues of common interest and needs identified through various regional frameworks. Under the 2022–2023 TCP cycle, a total of 144 Member States and territories (including 35 least developed countries) will have a national TC project. For planning purposes, it is assumed that the overall rate of attainment of the Technical Cooperation Fund will reach 94%.

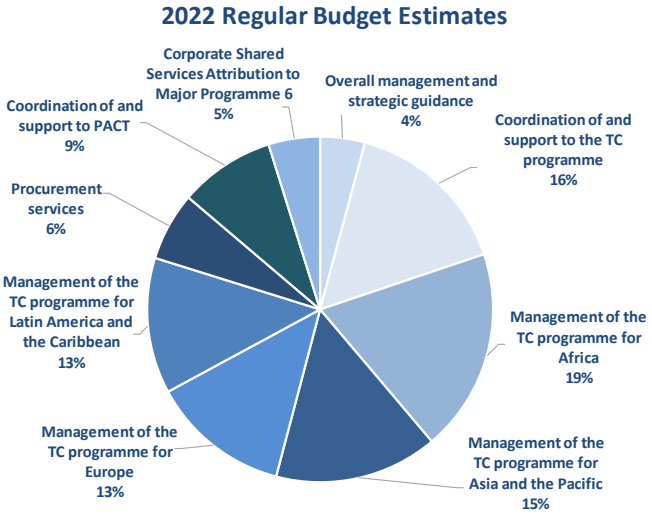
76. The TCP for the 2022–2023 cycle is formulated with an emphasis on the following:

- Enhancing dialogue with, and participation of, Member States at all stages of the programme cycle, in particular in the design, implementation, monitoring and reporting of TC projects;
- Ensuring the provision of adequate support to meet the growing demand and needs of Member States in using nuclear technology for sustainable development, including supporting their efforts to achieve the SDGs, particularly SDGs 2, 3, 6, 7, 9, 13, 14, 15 and 17;
- Supporting Member States in capacity building related to the early detection and control of zoonotic diseases;
- Supporting Member States that require assistance with building and expanding cancer care capacity by integrating radiotherapy, diagnostic imaging and nuclear medicine services into a comprehensive cancer control programme;
- Supporting Member States in addressing global challenges, such as climate change and plastic pollution;
- Supporting Member States to build and strengthen their regulatory and safety infrastructures for the safe and secure use of nuclear science and applications;
- Promoting cooperation among Member States in response to evolving development challenges through information and knowledge exchange utilizing, in particular, the expertise available regionally;
- Ensuring the Agency's continued capacity to plan and 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 by further strengthening the results based approach and increasing in-house coordination with technical Departments;
- Enhancing partnerships and resource mobilization efforts, including non-traditional donors and public–private partnerships;
- Strengthening the visibility and role of the TCP in nuclear technology transfer through outreach efforts, including through the Ministerial Conference on Nuclear Science, Technology and Applications and the Technical Cooperation Programme to be held in 2023; and
- Promoting gender mainstreaming, with a particular focus on the participation of women in TC activities.

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

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

Project		2021 Budget	2022 Estimates at 2021 prices	2022 Variance compared to 2021 EUR	2022 Variance compared to 2021 %	2023 Preliminary Estimates at 2021 prices	2023 Variance compared to 2022 EUR	2023 Variance compared to 2022 %
6.0.1.001	Overall management and strategic guidance	1 125 759	1 135 715	9 956	0.9%	1 135 715	-	-
6.0.1.002	Coordination of and support to the TC programme	4 403 319	4 248 814	(154 505)	(3.5%)	4 248 814	-	-
6.0.1.003	Management of the TC programme for Africa	5 065 922	5 159 565	93 643	1.8%	5 159 565	-	-
6.0.1.004	Management of the TC programme for Asia and the Pacific	4 110 071	4 149 245	39 175	1.0%	4 149 245	-	-
6.0.1.005	Management of the TC programme for Europe	3 474 196	3 530 532	56 336	1.6%	3 530 532	-	-
6.0.1.006	Management of the TC programme for Latin America and the Caribbean	3 395 777	3 454 077	58 301	1.7%	3 454 077	-	-
6.0.1.007	Procurement services	1 728 116	1 739 196	11 080	0.6%	1 739 196	-	-
6.0.1.008	Coordination of and support to PACT	2 547 838	2 433 853	(113 985)	(4.5%)	2 433 853	-	-
6.0.1.009	Corporate Shared Services Attribution to Major Programme 6	1 308 119	1 308 119	(0)	(0.0%)	1 308 119	0	0.0%
Total for Management of Technical Cooperation for Development		**27 159 116**	**27 159 116**	**0**	**0.0%**	**27 159 116**	**0**	**0.0%**



I.4 Major Capital Investments

Major Capital Investment Plan

77. The MCIP outlines the Agency's major capital projects for the next ten years. It is updated annually and is based on Agency requirements for maintaining an adequate, up-to-date and well-functioning infrastructure. An overview of the plan with annual projections is presented in Table 10.

78. For 2022, major capital investment requirements total €30.5 million. The breakdown is shown in the table below.

Major Programme/Major Capital Item (in € millions)	2022
1. Nuclear Power, Fuel Cycle and Nuclear Science	
Integrated Information Management Systems Upgrade	0.9
Establishment of an Ion Beam Accelerator Facility in Seibersdorf	0.1
Major Programme 1	**0.9**
2. Nuclear Techniques for Development and Environmental Protection	
ReNuAL 2	9.2
Major Programme 2	**9.2**
3. Nuclear Safety and Security	
Enhancing Radiation Safety through Efficient and Modern Dosimetry (RADSED)	0.5
Major Programme 3	**0.5**
4. Nuclear Verification	
Develop and Implement a Safeguards Approach for J-MOX	3.1
Integrated Life Cycle Management of Safeguards Assets (ILSA)	3.3
Major Programme 4	**6.3**
5. Policy, Management and Administration Services	
Provision for IT Infrastructure and Information Security Investment	8.8
Seibersdorf Infrastructure and Common Facilities	2.5
Buildings Management Services Capital Fund	1.5
Major Programme 5	**12.8**
6. Management of Technical Cooperation for Development	
Upgrade of the IAEA Technical Cooperation Programme Cycle Management Framework	0.9
Major Programme 6	**0.9**
Major Capital Investment Plan Total	**30.5**

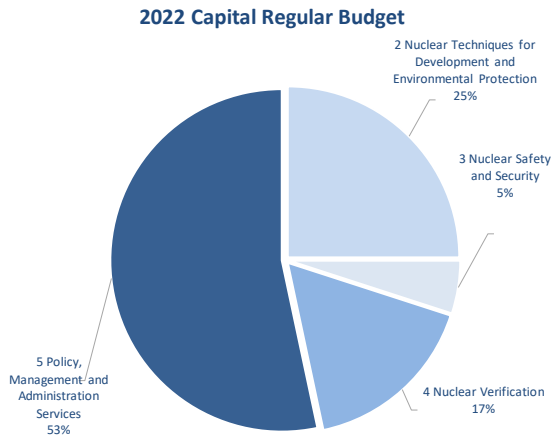
79. The MCIF is a reserve fund established in accordance with Financial Regulation 4.06 to help provide for those Agency major infrastructure requirements that are included in the MCIP. It provides an opportunity to fund capital requirements that could otherwise face continued deferral or require substantial increases in annual Member State contributions. The MCIF is reviewed by the Board of Governors in the framework of the established Programme and Budget approval process.

80. As indicated in document 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.

81. Since the inception of the MCIF in 2009,[7] 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 2020–2021 operational Regular Budget will also be transferred to the MCIF.

Capital Investments

82. The Director General is proposing, as in the 2021 Budget, to fund €2.0 million of the capital Regular Budget for 2022 from the unspent balances of past operational Regular Budget appropriations previously transferred to the MCIF and €6.0 million from assessed contributions. The same arrangement is expected to continue in 2023.



[7] See documents GOV/2009/1 and GOV/2009/52/Rev.1.

83. A total of €8.1 million of 2022 MCIF funding, after price adjustment, (€6.1 million from the capital Regular Budget and €2.0 million from the capital Carry Forward) will be distributed to the following capital projects:

- Renovation of the Nuclear Applications Laboratories (ReNuAL 2) — Major Programme 2 — €1.5 million.
- Enhancing Radiation Safety through Efficient and Modern Dosimetry (RADSED) — Major Programme 3 — €0.3 million.
- Develop and Implement a Safeguards Approach for J-MOX — Major Programme 4 — €1.0 million.
- Seibersdorf Infrastructure and Common Facilities — Major Programme 5 — €0.8 million.
- Provision for IT Infrastructure and Information Security Investment — Major Programme 5 — €3.0 million.
- Buildings Management Services Capital Fund — Major Programme 5 — €1.5 million.

84. As in prior years, a significant amount of capital investments proposed for 2022–2023 remains unfunded. A total of €22.4 million in capital requirements remains unfunded for 2022, while investments unfunded for 2023 amount to €20.4 million. It is hoped that these requirements will be funded through extrabudgetary contributions. The unfunded requirements for both 2022 and 2023 are presented in Table 12.

Overview by Major Programme

85. The following paragraphs provide an overview of those major capital investments that are part of the MCIP for 2022–2031.

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

Integrated Information Management Systems Upgrade

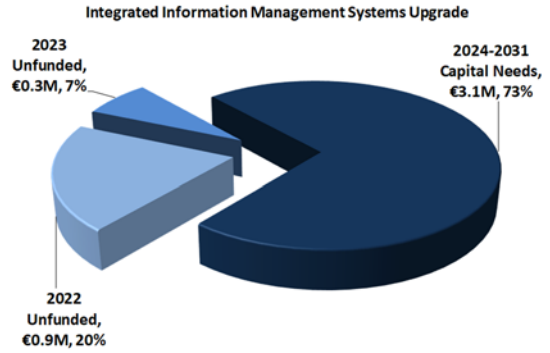
86. Major Programme 1 maintains a set of information systems for the collection and timely dissemination of validated, authoritative nuclear data, information and knowledge resources on peaceful uses of nuclear energy. However, some parts of these systems are currently at the end of their life cycle and need to be updated to ensure the integrity of the information and its availability to Member States. The objective of this project is to update, secure and further integrate these information systems, and to ensure their continuity.

87. The Department of Nuclear Energy's integrated information management system comprises several information systems, which include:

- Advanced Reactors Information System;
- International Catalogue of Sealed Radioactive Sources and Devices;
- Integrated Nuclear Fuel Cycle Information System;
- International Nuclear Information System;
- Power Reactor Information System;
- Radioactive Waste Management Registry System;
- Research Reactor Database; and
- Spent Fuel and Radioactive Waste Information System.

88. Efforts within this project will focus on modernization, security upgrades and greater integration of the information systems to reduce operational and maintenance costs. This will be accomplished by harmonizing the IT architecture of each system and standardizing the development framework elements. These systems will become more closely integrated, and duplication and inconsistencies in data will be eliminated.

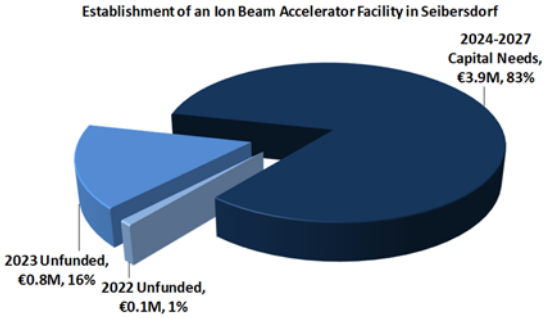
89. The overall project needs for the period 2022–2031 are estimated at €4.3 million. For 2022–2023, €1.2 million is needed but currently unfunded.



Establishment of an Ion Beam Accelerator Facility in Seibersdorf

90. The Nuclear Science and Instrumentation Laboratory (NSIL) in Seibersdorf, Austria, supports capacity building in Member States through the effective use and development of nuclear instrumentation and nuclear spectroscopy techniques in a variety of peaceful applications using adaptive research, analytical services and training activities. The objective of this project is to expand the capability of NSIL facilities by establishing an ion beam accelerator facility with several beam lines for ion beam analysis techniques as well as one dedicated to neutron production.

91. The overall project needs for the period 2022–2027 are estimated at €4.7 million. For 2022–2023, €0.8 million is needed but currently unfunded.

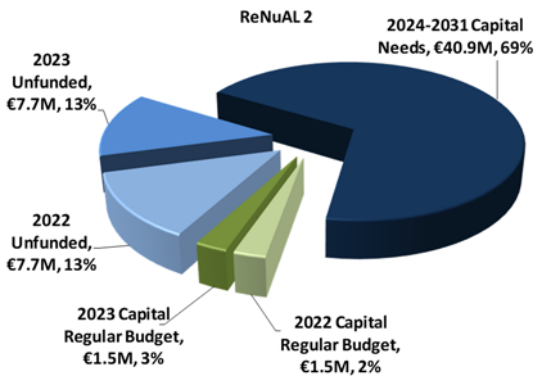


Major Programme 2 — Nuclear Techniques for Development and Environmental Protection

Renovation of the Nuclear Applications Laboratories (ReNuAL 2)

92. In a follow up to ReNuAL/ReNuAL+ project, ReNuAL 2 phase of the project will complete the modernization of Nuclear Applications laboratories at Seibersdorf and fulfil the vision of providing laboratory facilities to meet current and emerging needs. The three main elements of this phase are: 1) construction of a new laboratory building (provisionally called FML) to serve as home for the Nuclear Science and Instrumentation Laboratory, the Terrestrial Environment Laboratory, and the Plant Breeding and Genetics Laboratory; 2) refurbishment of the Dosimetry Laboratory in its current location adjacent to its new Linear Accelerator facility, and; 3) replacement of aging greenhouses in the laboratories, in particular for their important work on climate resilience and environmental resource management.

93. The overall capital project needs for the period 2022–2031 are estimated at €59.3 million. For 2022–2023, €18.4 million is needed, of which €1.5 million is funded from the capital Regular Budget for each year of the biennium. An amount of €15.3 million remains unfunded in 2022–2023. Provisions for funds beyond 2024 are planned for the sustainable management and upkeep of laboratory infrastructure and equipment and for addressing associated depreciation.



Calibration and Auditing Services for the Dosimetry Laboratory (Seibersdorf)

94. The Agency's Dosimetry Laboratory (DOL) supports Member States by providing calibration, comparison and dosimetry audit services. Key elements of quality assurance in dosimetry are traceability and independent dosimetry audits or verifications. In response to requests by Member States, the Agency provides calibrations and comparisons of national standards from dosimetry laboratories in Member States; dose quality audits to radiotherapy centres in hospitals; and educational, research and development activities in radiation metrology and medical physics. This project aims at maintaining the irradiator systems installed in the laboratory within the framework of a planned replacement and modernization programme to ensure the continuity of the delivery of the below services.

- The DOL X-ray systems are used for dosimetry calibration and comparison services provided to Member States. To be able to continue providing these services, the equipment needs to be replaced at the end of its useful lifetime (approximately 15 years). Its replacement is foreseen in 2024.
- The cobalt-60 unit (X-200) is used for dosimetry calibration, comparison and audit services for Member States. The ^{60}Co source should be replaced at regular intervals, depending on the source strength at the installation and typically not exceeding ten years.
- The DOL high dose rate brachytherapy system contains two different types of source, namely cobalt-60 and iridium-192. To continue to provide dosimetry calibration services to Member States, the system will need to be replaced owing to anticipated wear and tear of equipment. The replacement for this system is planned for 2027.
- The Agency's linear accelerator is used for dosimetry calibration, comparison and audit services. To continue to provide these services, the system will need to be replaced by 2029 owing to anticipated wear and tear of the mechanical parts, lack of availability of spare parts and the need to replace those hardware and software components having an impact on the latest developments in dosimetry.
- The dosimetry system is used for audits in hospitals and secondary standards dosimetry laboratories in Member States, as well as for reference and blind irradiations in reference hospitals, primary laboratories and throughout the Dosimetry Audit Networks. The system is due for replacement in 2030.

95. The overall project needs for the period 2024–2030 are estimated at €4.0 million.

Major Programme 3 — Nuclear Safety and Security

Enhancing Radiation Safety through Efficient and Modern Dosimetry (RADSED)

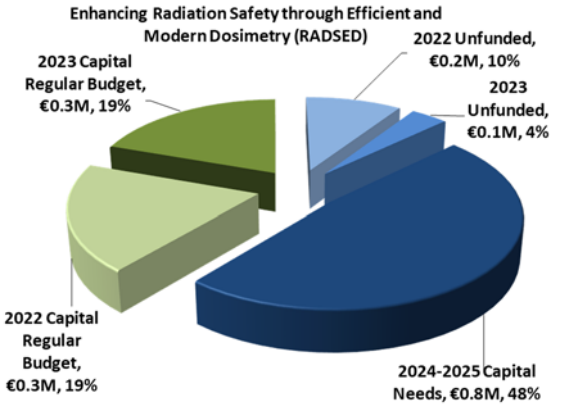
96. This project implements advanced dose assessment technologies and approaches in order to ensure the provision of radiation safety technical services at the highest level that can reasonably be achieved. The project will:

- Achieve state-of-the-art accuracy and sensitivity in assessing doses received by Agency staff and participants in Agency-sponsored activities;
- Provide recommendations to Member States on accurate and efficient modalities while understanding advantages and disadvantages of each depending on radiation exposure types and levels;
- Provide recommendations for non-routine planned operations regarding different dosimetry modalities.

97. Major actions taken to date include implementation of a radio photoluminescence glass-based dosimetry system for replacement of external whole-body thermoluminescence dosimetry (expected accreditation and roll-out to routine operations in 2021); development for rapid bioassay monitoring of excreta at enhanced resolution and sensitivity using inductively coupled plasma mass spectrometry (anticipated accreditation and roll-out to routine operation in 2022); implementation of numerical methods and voxel phantoms for flexible calibration of the whole-body counter; and installation of electronically refrigerated high-purity beryllium window germanium detectors for in-vivo dosimetry.

98. Plans for 2022–2023 include implementation of a neutron personal dosimetry system; update of the technical basis for assessment of committed doses arising from occupational intakes of radionuclides; continuous development and upgrade of a laboratory information management system for the Agency's individual monitoring laboratory; and evaluation of a personal air sampler-based dosimetry system with windowless gas flow counting to address detection challenges in actinide-based exposures.

99. The overall project needs for the period 2022–2025 are estimated at €1.6 million. For 2022–2023, €0.8 million is needed, of which €0.3 million is funded from the capital Regular Budget for each year of the biennium. An amount of €0.2 million remains unfunded for 2022–2023.



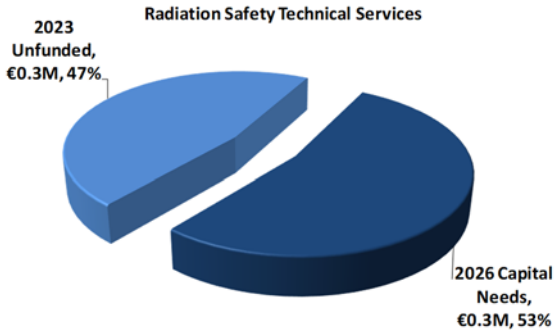
Radiation Safety Technical Services

100. Under Major Programme 3, the Division of Radiation, Transport and Waste Safety provides direct support to Agency managers and radiation protection officers enable them to meet their regulatory obligations to monitor and evaluate doses received by staff and doses by 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 significant value before it exceeds its service life and either fails or becomes non-functional. It also provides for a backup equipment programme as required by the ISO/IEC-17025 accreditation.

101. This project is required in order to ensure that 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 laboratory's ISO/IEC-17025 accreditation, and its being a model for Member States, is

dependent on having a replacement plan in place for when equipment fails.

102. The overall project needs for the period 2023–2026 are estimated at €0.6 million. For 2023, an amount of €0.3 million is currently unfunded.



Major Programme 4 — Nuclear Verification

Develop and Implement a Safeguards Approach for J-MOX

103. Japan Nuclear Fuel Limited is building a large-scale plant to produce mixed uranium and plutonium oxide fuel for light water reactors at its site in Rokkasho-mura. Construction started in 2010, and, according to the latest officially supplied information, operations are expected to commence by the end of 2022. Although there are still uncertainties about that deadline, the development, manufacture, testing and installation of equipment and software are necessary in order to have all safeguards systems available for use for the targeted operation of the facility. The relevant plans include funding from the MCIF for major equipment and software required for safeguarding the plant.

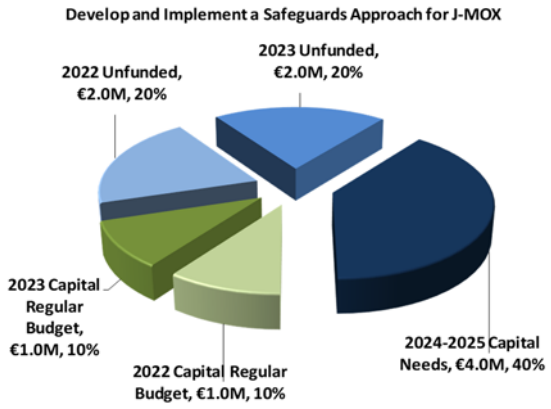
104. The overall project needs for the period 2022–2025 are estimated at €10.1 million. For 2022–2023, €6.1 million is needed, of which €1.0 million is funded from the capital Regular Budget for each year of the biennium. An amount of €4.1 million remains unfunded in 2022–2023.

Develop and Implement Safeguards Approaches for a Spent Fuel Encapsulation Plant and Geological Repository (EPGR) in Finland and Sweden

105. 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 2025. In Sweden, it is planned to start construction in 2022–2023 and to commence operation in 2032. The construction of EPGRs represents new safeguards challenges, as nuclear material is intended to remain there permanently and traditional access for verification will not be possible. Planning for safeguards equipment installation is also challenging, as equipment development over time needs to be carefully considered.

106. The project coordinates the development of specific safeguards approaches for EPGRs, assesses the existing verification methods, identifies the need for new equipment and techniques for safeguarding these facilities and will implement optimized safeguards measures at the time these facilities become operational.

107. The overall project needs for the period 2024–2028 are estimated at €5.0 million.

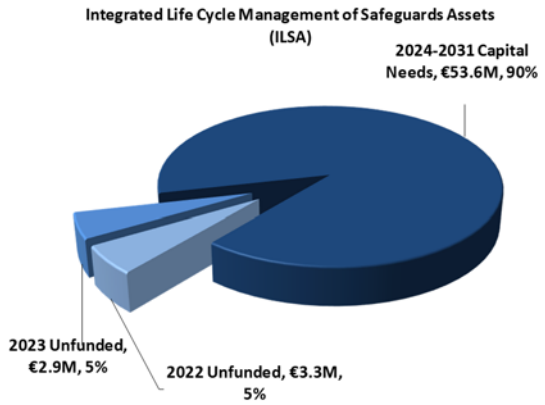


Integrated Life Cycle Management of Safeguards Assets (ILSA)

108. This project aims at enhancing the existing safeguards asset management system, including the definition of policies, governance, strategies, processes, practices and enablers (such as technology tools, data, materials, equipment and human resources) that are applied to manage assets through their entire life cycle, and defines the safeguards management approach to establishing, maintaining and continuously improving the asset management system. A strong asset management system creates the conditions for an efficient holistic review of all safeguards assets, which in turn allows for both planning and prioritizing safeguards assets needs.

109. The objective of the project is to ensure the sustainability of assets in support of the Agency's verification activities through the implementation of the safeguards asset management strategy. This would make it possible to set the capital requirements and secure sufficient funding that can be utilized in response to business needs and in line with the developments in other technical areas.

110. The overall project needs for the period 2022–2031 are estimated at €59.7 million. For 2022–2023, €6.2 million is needed but currently unfunded.



Major Programme 5 — Policy, Management and Administration Services

Provision for IT Infrastructure and Information Security Investment

111. Secure, available and reliable information and communication technology (ICT) infrastructure and support systems are essential to programme delivery. This critical project covers the ICT costs associated with maintaining up-to-date ICT infrastructure and services through the procurement of hardware, software and cloud or subscription-based services. Components of this project include infrastructure replacement related to the network, telecommunications, data processing, data centre, and applications to ensure that the infrastructure and services remain fit for purpose, vendor-supported and secure.

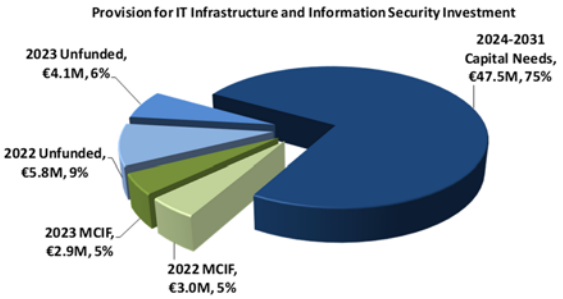
112. The project also includes disaster recovery infrastructure. The Agency needs to maintain a strong disaster recovery infrastructure and capability for selected critical systems. Funding would be used to upgrade existing capabilities to ensure that they remain viable and vendor supported.

113. A third component relates to the need for future upgrades of common support systems. The long term viability of the AIPS solution is dependent on maintaining the solution on versions of the core commercial product that are in alignment with the vendor's strategic direction, and utilization of this platform by leveraging vendor components to increase automation and introduce operational efficiencies across the Agency, e.g. introducing an archiving solution to address data growth and system performance, and assessing alternative AIPS hosting arrangements.

114. A fourth component is related to a new data integration framework. The Agency's information assets must be managed efficiently, accurately and securely. These investments would streamline the existing integration architecture, consolidate data integration onto a common platform and leverage a new data integration and governance framework. The benefits of this investment include minimizing

the proliferation of sensitive data throughout the Agency, reducing the risk of data loss or compromise, improving the accuracy of the data supporting Agency-wide decision making, and simplifying the Agency's information technology investment.

115. The overall project needs for the period 2022–2031 are estimated at €63.3 million. For 2022–2023, €15.8 million is needed, funded by €0.9 million from the capital Regular Budget and by €2.0 million from the capital Carry Forward for each year of the biennium, while an amount of €9.9 million remains unfunded.



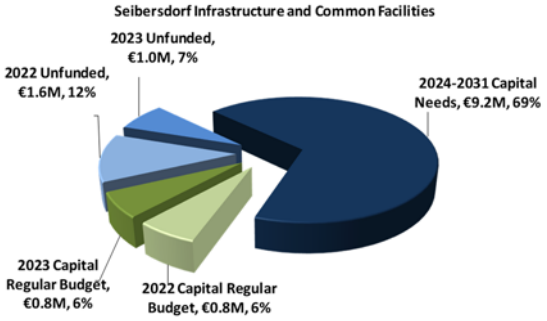
Seibersdorf Infrastructure and Common Facilities

116. The objective of this project is to ensure the Agency's ability to maintain ongoing and planned investments into the laboratories and property in Seibersdorf, and, as such, to support the delivery of the relevant programmes. This need has resulted from the infrastructure investments in Seibersdorf, including the expansion of the laboratories, and the increase in complexity of the site infrastructure. The project covers infrastructure capital investments and costs related to the decommissioning of old infrastructures and obsolete or unsafe buildings and constructions.

117. The project also addresses the need for the replacement of non-laboratory specific equipment in line with standard life cycles required to support site infrastructure and buildings.

118. It covers continued investments in physical security infrastructure, including the upgrade, renewal and integration of existing physical security systems.

119. The total project needs for the period 2022–2031 are estimated at €13.5 million. The 2022–2023 funding requirement for the project is €4.3 million, of which €0.8 million is funded from the capital Regular Budget for each year of the biennium.

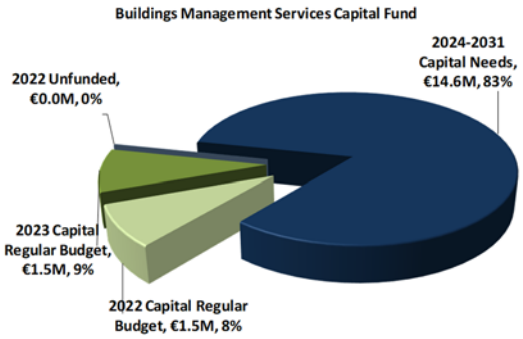


Buildings Management Services Capital Fund

120. This project represents the Agency's contribution to the Major Repairs and Replacement Fund (MRRF). The MRRF was established as a common fund for the purpose of financing the cost of major repairs and replacement of buildings, facilities and technical installations at the Vienna International Centre (VIC). The annual assessed contributions to the fund are shared equally between the Republic of Austria and the VIC based organizations.

121. The project objective is to ensure the Agency's continued ability to finance its cost share contributions towards major repairs and replacement in the buildings, facilities and technical installations at the VIC. It covers investments in ageing infrastructure that are of a capital nature, such as major improvements to buildings; external facilities; and air conditioning, heating, water and other systems.

122. The total project needs for the period 2022–2031 are estimated at €17.6 million. The 2022–2023 funding requirement for the project is €3.0 million and is funded from the capital Regular Budget.



Major Programme 6 — Management of Technical Cooperation for Development

Upgrade of the IAEA Technical Cooperation Programme Cycle Management Framework

123. The planning, design and review process for the TCP is handled through the Programme Cycle Management Framework (PCMF). The PCMF, with its decentralized usage, leveraging IT web-based systems, enables Member States' responsibility and ownership over the formulation and execution of their TCP, while allowing stakeholders in the Secretariat to support the process and collaborate in a transparent manner. The PCMF enables users to develop and manage the TCP from formulating CPFs and submitting project concepts and designs, to approval and project and programme monitoring. It facilitates interaction between members of project teams and provides facilities for completing, compiling and approving Board of Governors documentation.

124. The PCMF was introduced in 2005 and leverages a platform that requires regular updates, which is no longer possible nor sustainable in the long term, given that it uses obsolete technology. With the introduction of new information security standards and systems, support for the underlying technology will soon end, and it will require an overhaul. Increased inter-connectivity with AIPS and InTouch+, as well as the enhancement of the user experience and features, would greatly benefit both the Secretariat and Member States.

125. The upgrade is planned in three stages:

- Technological upgrade of the PCMF system and platform introducing information security enhancements, technology and platform updates, systems integration and a business intelligence solution;
- Functional upgrade focusing on functional enhancements, user experience, dashboards and dissemination of project-related information; and
- Knowledge management and development of e-learning materials, documentation, help and step-by-step guides, training, and the roll-out and repository of documents.

126. The overhaul of the PCMF, subject to availability of funding, is planned for the period 2022–2025, in time for the 2026–2027 technical cooperation cycle. Project activities would continue in 2025 towards full completion of the planned project.

127. The total project needs for the period 2022–2025 are estimated at €4.6 million. For 2022–2023, €2.3 million is needed but currently unfunded.

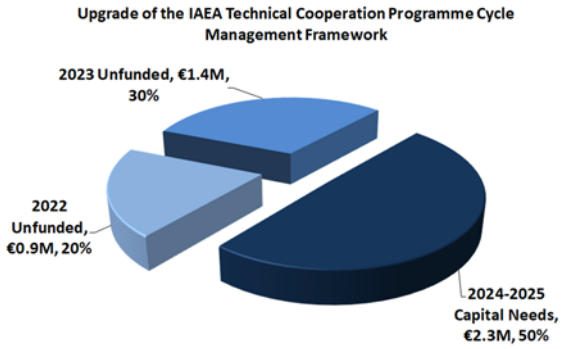


Table 10. Major Capital Investment Plan 2022–2031

Major Programme/Major Capital Item	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	Total
1. Nuclear Power, Fuel Cycle and Nuclear Science											
Integrated Information Management Systems Upgrade	864 450	305 100	-	-	-	640 710	1 220 400	681 390	386 460	162 720	4 261 230
Establishment of an Ion Beam Accelerator Facility in Seibersdorf	50 850	762 750	1 464 480	1 688 220	518 670	203 400	-	-	-	-	4 688 370
Major Programme 1	**915 300**	**1 067 850**	**1 464 480**	**1 688 220**	**518 670**	**844 110**	**1 220 400**	**681 390**	**386 460**	**162 720**	**8 949 600**
2. Nuclear Techniques for Development and Environmental Protection											
ReNuAL 2	9 180 563	9 180 563	5 339 250	5 085 000	5 085 000	5 085 000	5 085 000	5 085 000	5 085 000	5 085 000	59 295 376
Calibration and Auditing Services for the Dosimetry Laboratory (Seibersdorf)	-	-	203 400	-	-	254 250	305 100	3 051 000	203 400	-	4 017 150
Major Programme 2	**9 180 563**	**9 180 563**	**5 542 650**	**5 085 000**	**5 085 000**	**5 339 250**	**5 390 100**	**8 136 000**	**5 288 400**	**5 085 000**	**63 312 526**
3. Nuclear Safety and Security											
Enhancing Radiation Safety through Efficient and Modern Dosimetry (RADSED)	455 980	362 795	388 270	372 740	-	-	-	-	-	-	1 579 785
Radiation Safety Technical Services	-	264 420	-	-	303 066	-	-	-	-	-	567 486
Major Programme 3	**455 980**	**627 215**	**388 270**	**372 740**	**303 066**	**-**	**-**	**-**	**-**	**-**	**2 147 271**
4. Nuclear Verification											
Develop and Implement a Safeguards Approach for J-MOX	3 051 000	3 051 000	2 034 000	1 932 300	-	-	-	-	-	-	10 068 300
Develop and Implement Safeguards Approaches for a SF EPGR	-	-	164 754	539 010	1 530 528	1 530 528	1 187 107	-	-	-	4 951 928
Integrated Life Cycle Management of Safeguards Assets (ILSA)	3 255 315	2 904 552	3 238 637	4 078 068	4 191 972	5 305 384	6 536 157	8 310 110	9 716 316	12 181 626	59 718 138
Major Programme 4	**6 306 315**	**5 955 552**	**5 437 391**	**6 549 378**	**5 722 500**	**6 835 912**	**7 723 265**	**8 310 110**	**9 716 316**	**12 181 626**	**74 738 366**
5. Policy, Management and Administration Services											
Provision for IT Infrastructure and Information Security Investment	8 807 220	6 976 620	4 637 520	8 654 670	4 688 370	5 298 570	5 552 820	6 417 270	6 824 070	5 400 270	63 257 400
Seibersdorf Infrastructure and Common Facilities	2 471 310	1 805 175	1 322 100	1 169 550	1 118 700	1 118 700	1 118 700	1 118 700	1 118 700	1 118 700	13 480 335
Buildings Management Services Capital Fund	1 488 589	1 545 840	1 603 871	1 662 589	1 723 454	1 786 549	1 851 952	1 919 750	1 990 030	2 062 883	17 635 506
Major Programme 5	**12 767 119**	**10 327 635**	**7 563 491**	**11 486 809**	**7 530 524**	**8 203 819**	**8 523 472**	**9 455 720**	**9 932 800**	**8 581 853**	**94 373 241**
6. Management of Technical Cooperation for Development											
Upgrade of the IAEA Technical Cooperation Programme Cycle Management Framework	907 724	1 388 973	1 663 899	590 748	-	-	-	-	-	-	4 551 344
Major Programme 6	**907 724**	**1 388 973**	**1 663 899**	**590 748**	**-**	**-**	**-**	**-**	**-**	**-**	**4 551 344**
Major Capital Investment Plan Total	**30 533 001**	**28 547 788**	**22 060 181**	**25 772 894**	**19 159 760**	**21 223 091**	**22 857 237**	**26 583 221**	**25 323 976**	**26 011 199**	**248 072 348**

Table 11. Capital Regular Budget Details 2022–2023

Major Programme/Major Capital Item	2021 Budget	2022 Estimates at 2021 Prices	2022 Estimates at 2022 Prices	2023 Preliminary Estimates at 2022 Prices	2023 Preliminary Estimates at 2023 Prices
2. Nuclear Techniques for Development and Environmental Protection					
ReNuAL 2	2 066 544	1 500 000	1 525 500	1 525 500	1 551 433
Major Programme 2	**2 066 544**	**1 500 000**	**1 525 500**	**1 525 500**	**1 551 433**
3. Nuclear Safety and Security					
Enhancing Radiation Safety through Efficient and Modern Dosimetry	309 982	300 000	305 100	305 100	310 287
Major Programme 3	**309 982**	**300 000**	**305 100**	**305 100**	**310 287**
4. Nuclear Verification					
Develop and Implement a Safeguards Approach for J-MOX	1 033 272	1 000 000	1 017 000	1 017 000	1 034 289
Major Programme 4	**1 033 272**	**1 000 000**	**1 017 000**	**1 017 000**	**1 034 289**
5. Policy, Management and Administration Services					
Provision for IT Infrastructure and Information Security Investment	3 823 106	2 910 000	2 959 470	2 898 450	2 947 724
Seibersdorf Infrastructure and Common Facilities	1 033 272	830 000	844 110	844 110	858 460
Buildings Management Services Capital Fund	-	1 460 000	1 484 820	1 545 840	1 572 119
Major Programme 5	**4 856 378**	**5 200 000**	**5 288 400**	**5 288 400**	**5 378 303**
Major Capital Investment Fund	**8 266 176**	**8 000 000**	**8 136 000**	**8 136 000**	**8 274 312**
Capital Carry Forward	**(2 066 544)**	**(2 000 000)**	**(2 034 000)**	**(2 034 000)**	**(2 068 578)**
Capital Regular Budget	**6 199 632**	**6 000 000**	**6 102 000**	**6 102 000**	**6 205 734**

128. The table below lists the capital needs for 2022 and 2023 that will not be funded from the MCIF. It is expected that these needs will attract extrabudgetary pledges from Member States.

Table 12. Unfunded 2022–2023 Capital Needs

Major Programme/Major Capital Item	2022	2023
1. Nuclear Power, Fuel Cycle and Nuclear Science		
Integrated Information Management Systems Upgrade	864 450	305 100
Establishment of an Ion Beam Accelerator Facility in Seibersdorf	50 850	762 750
Major Programme 1	**915 300**	**1 067 850**
2. Nuclear Techniques for Development and Environmental Protection		
ReNuAL 2	7 655 063	7 655 063
Major Programme 2	**7 655 063**	**7 655 063**
3. Nuclear Safety and Security		
Enhancing Radiation Safety through Efficient and Modern Dosimetry	150 880	57 695
Radiation Safety Technical Services	-	264 420
Major Programme 3	**150 880**	**322 115**
4. Nuclear Verification		
Develop and Implement a Safeguards Approach for J-MOX	2 034 000	2 034 000
Integrated Life Cycle Management of Safeguards Assets (ILSA)	3 255 315	2 904 552
Major Programme 4	**5 289 315**	**4 938 552**
5. Policy, Management and Administration Services		
Provision for IT Infrastructure and Information Security Investment	5 847 750	4 078 170
Seibersdorf Infrastructure and Common Facilities	1 627 200	961 065
Buildings Management Services Capital Fund	3 769	-
Major Programme 5	**7 478 719**	**5 039 235**
6. Management of Technical Cooperation for Development		
Upgrade of the IAEA Technical Cooperation Programme Cycle Management Framework	907 724	1 388 973
Major Programme 6	**907 724**	**1 388 973**
Unfunded Capital Needs Total	**22 397 001**	**20 411 789**

I.5 Draft Resolutions for 2022

129. This section presents the draft resolutions for 2022, including the appropriations for the Regular Budget for 2022, the allocation for the Technical Cooperation Fund (TCF) in 2022 and the Working Capital Fund (WCF) in 2022.

A. The Regular Budget

130. Regular Budget appropriations for 2022 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.

131. 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 2021.

B. Technical Cooperation Programme

132. The technical cooperation activities of the Agency are financed from the TCF and extrabudgetary contributions. The TCF mainly comprises 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 amounts to €91 075 000 for 2022 and of €92 600 000 for 2023.

133. The forecast of the resources for the technical cooperation programme for 2022 amounts to €117 610 500, comprising €85 610 500 for estimated core project funding, €2 000 000 for National Participation Costs (to be added to the estimated core funding) and €30 000 000 for the estimated implementation levels of extrabudgetary activities.

134. The forecast of the resources for the technical cooperation programme for 2023 amounts to €118 044 000, comprising €87 044 000 for estimated core project funding, €1 000 000 for National Participation Costs (to be added to the estimated core funding) and €30 000 000 for the estimated implementation levels of extrabudgetary activities.

135. These amounts do not constitute a target for, or limitation on, funds and do not in any way prejudge the technical cooperation programme for 2022 and 2023.

C. Working Capital Fund

136. During its 64th regular session, the General Conference approved a continuation of the WCF at the level of €15 210 000 for 2021. No change in this level is proposed for 2022, 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 2022

The General Conference,

Accepting the recommendations of the Board of Governors relating to the Regular Budget of the Agency for 2022,[1]

1. Appropriates, on the basis of an exchange rate of US $1.00 to €1.00, an amount of €393 323 122 for the operational portion of the Regular Budget expenses of the Agency in 2022 as follows:[2]

		€
1.	Nuclear Power, Fuel Cycle and Nuclear Science	42 790 579
2.	Nuclear Techniques for Development and Environmental Protection	43 515 306
3.	Nuclear Safety and Security	38 323 213
4.	Nuclear Verification	153 657 265
5.	Policy, Management and Administration Services	84 287 568
6.	Management of Technical Cooperation for Development	27 620 821
	Subtotal of Major Programmes	390 194 752
7.	Reimbursable work for others	3 128 370
	TOTAL	393 323 122

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 €235 000;

from contributions by Member States amounting, at an exchange rate of US $1.00 to €1.00, to €389 959 752 (€335 228 545 plus US $54 731 207), in accordance with the scale of assessment fixed by the General Conference in resolution GC(65)/RES/ ;

[1] Document GC(65)/2.

[2] Appropriation Sections 1–6 represent the Agency's Major Programmes.

3. Appropriates, on the basis of an exchange rate of US $1.00 to €1.00, an amount of €6 102 000 for the capital portion of the Regular Budget expenses of the Agency in 2022 as follows:[3]

		€
1.	Nuclear Power, Fuel Cycle and Nuclear Science	-
2.	Nuclear Techniques for Development and Environmental Protection	1 525 500
3.	Nuclear Safety and Security	305 100
4.	Nuclear Verification	1 017 000
5.	Policy, Management and Administration Services	3 254 400
6.	Management of Technical Cooperation for Development	-
	TOTAL	6 102 000

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, at an exchange rate of US $1.00 to €1.00, to €6 102 000 (€6 036 199 plus US $65 801), in accordance with the scale of assessment fixed by the General Conference in resolution GC(65)/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 2022, 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 2022; 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] See footnote 2.

ATTACHMENT

A.1. APPROPRIATIONS FOR THE OPERATIONAL PORTION OF THE REGULAR BUDGET IN 2022

ADJUSTMENT FORMULA IN EUROS

		€		US$
1.	Nuclear Power, Fuel Cycle and Nuclear Science	36 362 001	+ (	6 428 578 /R)
2.	Nuclear Techniques for Development and Environmental Protection	38 645 247	+ (	4 870 059 /R)
3.	Nuclear Safety and Security	31 374 389	+ (	6 948 824 /R)
4.	Nuclear Verification	129 884 079	+ (	23 773 186 /R)
5.	Policy, Management and Administration Services	75 599 222	+ (	8 688 346 /R)
6.	Management of Technical Cooperation for Development	23 598 607	+ (	4 022 214 /R)
	Subtotal of Major Programmes	335 463 545	+ (	54 731 207 /R)
7.	Reimbursable work for others	3 128 370	+ (	- /R)
	TOTAL	338 591 915	+ (	54 731 207 /R)

Note: R is the average United Nations dollar to euro exchange rate which will be experienced during 2022.

ATTACHMENT

A.2. APPROPRIATIONS FOR THE CAPITAL PORTION OF THE REGULAR BUDGET IN 2022

ADJUSTMENT FORMULA IN EUROS

		€		US$	
1.	Nuclear Power, Fuel Cycle and Nuclear Science	-	+ (	-	/R)
2.	Nuclear Techniques for Development and Environmental Protection	1 459 699	+ (	65 801	/R)
3.	Nuclear Safety and Security	305 100	+ (	-	/R)
4.	Nuclear Verification	1 017 000	+ (	-	/R)
5.	Policy, Management and Administration Services	3 254 400	+ (	-	/R)
6.	Management of Technical Cooperation for Development	-	+ (	-	/R)
	TOTAL	6 036 199	+ (	65 801	/R)

Note: R is the average United Nations dollar to euro exchange rate which will be experienced during 2022.

B. TECHNICAL COOPERATION FUND ALLOCATION FOR 2022

The General Conference,

(a) Noting the decision of the Board of Governors of June 2021 to recommend the Technical Cooperation Fund target of €91 075 000 for voluntary contributions to the Agency's Technical Cooperation Fund for 2022; and

(b) Accepting the foregoing recommendation of the Board;

1. Decides that for 2022 the target figure for voluntary contributions to the Technical Cooperation Fund shall be €91 075 000;

2. Allocates, in euros, contributions of €91 075 000 for the Agency's technical cooperation programme for 2022; and

3. Urges all Member States to make voluntary contributions for 2022 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 2022

The General Conference,

Accepting the recommendations of the Board of Governors relating to the Agency's Working Capital Fund for 2022,

1. Approves a level of €15 210 000 for the Agency's Working Capital Fund for 2022;

2. Decides that the Fund shall be financed, administered and used in 2022 in accordance with the relevant provisions of the Financial Regulations of the Agency;[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; and

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] Document INFCIRC/8/Rev.4.

PART II

The Agency's Programme and Budget 2022–2023
Details by Major Programme

Major Programme 1
Nuclear Power, Fuel Cycle and Nuclear Science

Introduction

Major Programme 1 supports Member States to enhance the contribution of nuclear technology to peace, health and prosperity, by providing scientific and technical support, guidance and services for the development and deployment of nuclear power and research reactor technology, including their nuclear fuel cycles and nuclear fuel cycle facilities, for radioactive waste management, decommissioning and environmental remediation, energy system analysis and energy planning, and nuclear knowledge and information management. It also supports advancements in nuclear science, including nuclear fusion research and technology, nuclear and atomic data, accelerators and neutron sources, and nuclear instrumentation.

To mitigate the effects of climate change, nuclear power could become an integral component in the national energy mix of Member States that opt for it, supporting energy security and the achievement of relevant Sustainable Development Goals (SDGs), in particular SDG 7 (on affordable and clean energy) and SDG 13 (on climate action). The Secretariat will continue to support interested Member States in assessing their future energy needs and in evaluating and understanding the potential for nuclear power to be part of their energy strategies. The Major Programme provides support for Member States considering, embarking on or expanding nuclear power programmes. It also supports Member States with operating nuclear power plants (NPPs) in the areas of enhancing operating performance; life management; and 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 reactors, and innovative reactor systems and associated fuel cycles, along with the non-electric applications of nuclear power and cogeneration technologies.

Major Programme 1 supports Member States in uranium exploration, mining and milling; and in fuel cycle activities, including those related to spent fuel integrity, design vulnerabilities, defueling and storage. Technical assistance will continue to be provided for radioactive waste management, decommissioning of nuclear facilities and management of disused sealed radioactive sources (DSRSs), as well as for environmental remediation. The Major Programme will continue to support Member States with an interest in building, operating or accessing research reactors — including via the IAEA-designated International Centre based on Research Reactor (ICERR) scheme — and in improving their utilization. Upon Member States' request, support for transitioning from the use of high enriched uranium to low enriched uranium in research reactors will continue. Support will also continue in the field of nuclear knowledge management (NKM), including information management, dissemination and preservation.

The Agency will remain a reliable source of nuclear, atomic and molecular data. Training and facilitation of experiments using various types of particle accelerator and other nuclear instrumentation will continue. The Major Programme will continue to support Member States in their fusion research and development activities and in the exchange of knowledge, including cooperation with the ITER Organization. Collaboration 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, will focus more on the areas of relevance to the Agency such as basic and applied nuclear sciences and nuclear energy.

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

Outcomes	Performance Indicators
• Increased Member State use of Agency information, resources and services, and cooperation opportunities in life cycle management of existing, expanded and new nuclear programmes, including fuel cycles, decommissioning, environmental remediation and radioactive waste management.	• Number of Member States using Agency information, resources and services for managing the life cycle of their nuclear programmes. • Number of Member States engaged in Agency collaborative frameworks.
• Improved Member State understanding of the potential role of nuclear technologies, including electric and non-electric applications of nuclear energy, in support of sustainable development.	• Number of professionals from Member States trained within the biennium in the use of Agency tools, models and methodologies. • Number of Member States considering embarking on or expanding nuclear power programmes using Agency publications, tools and services.
• Increased Member State use of Agency information, resources and services, and cooperation opportunities in nuclear science for technological and socio-economic advancement.	• Number of participants in Agency events, workshops and training courses on nuclear science. • Number of Member States accessing and retrieving atomic and nuclear data from Agency websites.

Projects

Title	Main Planned Outputs
1.0.0.001 Overall management, coordination and common activities	Executive, programmatic and administrative guidance documents; internal reports; Agency policy and reporting documents; services for information gathering and sharing.
1.0.0.002 Outreach and stakeholder involvement	Production and editing of relevant Board of Governors documents, as well as speeches, presentations, talking points, briefs, brochures and visuals; public information materials targeted at the Department of Nuclear Energy's stakeholders, including web stories, animations, videos and posts on the Department's webpage and Twitter account; production of information materials aimed at the general public, in coordination with the Office of Public Information and Communication; coordination of the Department of Nuclear Energy's work on stakeholder involvement.
1.0.0.003 Partnerships and resource mobilization	Development and roll-out of a database for prospective donors; donor communication and outreach plan.

Programme 1.1 Nuclear Power

Programme 1.1 supports Member States in their efforts towards better performance and safe, secure, efficient and reliable long term operation of NPPs. Support is provided to existing and expanding nuclear programmes, including for human resource development programmes, application of technologies in NPP operation and the implementation of integrated management systems for operating and other organizations. 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 NPPs and for their safe, secure, efficient and reliable operation. In this regard, the programme coordinates services with all other Agency Departments, in particular the Department of Nuclear Safety and Security, the Department of Safeguards and the Department of Technical Cooperation.

The programme provides a forum for technology users and holders to jointly consider innovations, and supports Member States in their long term 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 Member States' activities in research, innovation and technical advancement associated with advanced nuclear power reactors, non-electric applications of nuclear power, cross-cutting areas in technology development between nuclear fission and nuclear fusion for energy production, and integration of NESs with other clean energy sources. This is achieved by coordinating research, promoting the exchange of information, supporting reactor technology assessment and education and training, developing toolkits, and analysing data and results for various advanced reactor technologies.

Lessons learned from reviews, assessments and evaluations: Member States operating nuclear facilities and those interested in expanding or starting nuclear power programmes expect the Secretariat to continue to disseminate good practices through new and updated publications, support the exchange of information on technical engineering and human resource developments, and provide tailored review and assistance services. Member States appreciate support such as NPP life management, the Milestones approach to new nuclear power programmes, and the interregional training workshop activities and 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, including nuclear hydrogen production, with special emphasis on small modular reactors for near-term deployment. Additionally, several Member States have recently asked the Secretariat to promote activities on integrated energy systems and microreactors.

Specific criteria for prioritization:

1. Activities supporting Member States' efforts towards better performance and safe, secure, efficient and reliable long term operation of both existing and new NPPs.
2. Activities supporting the development of nuclear power infrastructure and human resource capacity building in Member States embarking on a nuclear power programme.
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.
4. Activities supporting Member States and stakeholders in development and deployment of advanced reactor technologies and related applications, including integrated energy systems, 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 NPPs and new nuclear power projects. This includes the provision of support to Member States in plant life management for enhanced performance and safe, secure, efficient, reliable and economically sustainable long term operation of NPPs. This subprogramme also assists Member States in engineering aspects at all stages of nuclear projects, including Member States embarking on or expanding their nuclear power programmes. To optimize operating costs, Member States can benefit from operational efficiencies and effectiveness identified by the work of this subprogramme. Member States expanding nuclear power programmes will also benefit from the subprogramme's collection and dissemination of good practices and lessons learned in the construction, commissioning and operation of NPPs.

Subprogramme 1.1.2 Management and Human Resource Development for Nuclear Power Programmes continues to focus its support on the management, human resource development and capacity building for operating NPPs and new nuclear power projects in embarking Member States, as well as in Member States with an existing nuclear power programme.

Subprogramme 1.1.3 Integrated Support for Nuclear Power Programme Infrastructure Development is the point of integration for such activities throughout Major Programme 1 and for their coordination across the Agency. Thus, some of these activities are implemented in conjunction with other Agency Departments. In 2022–2023, the number of embarking and expanding Member States requesting Agency assistance is expected to remain constant. Additionally, efforts will be increased towards improving the quality, consistency and effectiveness of Agency assistance to embarking and expanding Member States.

Subprogramme 1.1.4 International Project on Innovative Nuclear Reactors and Fuel Cycles will continue to focus on national, regional and global nuclear energy sustainability issues and related cooperation among INPRO members. INPRO activities will continue to include the provision of assistance to Member States with nuclear energy system assessments (NESAs), nuclear energy scenario analysis, collaborative projects, and further development of tools for NESA and sustainable NES planning services. Provision of training services and guidance to Member States on the application of INPRO products will continue. The INPRO Strategic Plan 2018–2023, endorsed by the INPRO Steering Committee in 2017, will continue to be implemented in 2022–2023.

Subprogramme 1.1.5 Technology Development for Advanced Reactors and Non-electric Applications of Nuclear Power supports the development and deployment of evolutionary and innovative nuclear power reactors and their non-electric applications. Deployment of advanced water cooled reactors (AWCRs), as well as development, licensing and initial deployment of small and medium sized or modular reactors (SMRs), by Member States, including newcomer countries, is expected to increase. Therefore, the subprogramme will address specific development and deployment challenges and opportunities for AWCRs, SMRs, high temperature reactors (high temperature gas cooled reactors (HTGRs) and molten salt reactors) and microreactors. The subprogramme will

also address technology development of fast reactors and cross-cutting areas between nuclear fission and nuclear fusion for energy production. Additionally, it will assist Member States in developing and applying advanced modelling and simulation tools validated by experimental data. Focus will continue on facilitating the deployment of non-electric applications, i.e. hydrogen and heat production, and nuclear cogeneration to address climate change and support the clean energy transition, while increasing the thermal efficiency of NPPs. The activities aimed at supporting the integration of nuclear power with other clean energy sources will also be strengthened in cooperation with other international organizations.

Objectives, Outcomes and Performance Indicators by Programme

Programme 1.1 Nuclear Power

Objectives:

- *To support Member States with existing NPPs to enhance operating performance and safe, secure, efficient and reliable long term operation, with a harmonized approach to human, technological and organizational aspects.*
- *To support Member States embarking on new nuclear power programmes in planning and building their national nuclear infrastructures through coordinated assessment and assistance activities.*
- *To support Member States in modelling, analysing and assessing future NESs for sustainable development of nuclear energy and to provide them with collaborative frameworks and support for technology development and deployment of advanced nuclear reactors, non-electric applications, and integrated energy systems.*

Outcomes	Performance Indicators
• Increased Member State use of Agency's information, resources and services for efficient and reliable long term operation and life cycle management of existing NPPs, including improved management system, human resource and workforce capabilities.	• Number of Member States using relevant Agency resources, including Nuclear Energy Series publications, guidelines, recommendations and databases for engineering activities within existing and expanding nuclear power programmes. • Number of Member States using Agency resources for management system, human resource and workforce capabilities within existing and expanding nuclear power programmes.
• Increased Member State understanding of issues and commitments regarding the development of the national infrastructure for embarking on a nuclear power programme.	• Number of self-evaluation support missions, Integrated Nuclear Infrastructure Review (INIR) missions, including pre-INIR and INIR follow-up missions, completed. • Number of Member States using guidance material for nuclear power infrastructure development.
• Increased cooperation among Member States on global nuclear energy sustainability, long term nuclear energy strategies, nuclear reactor technology development, non-electric applications and integrated energy systems.	• Number of Member States participating in INPRO collaborative projects and 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 non-electric applications of nuclear power through coordinated research projects (CRPs), Technical Meetings and training courses.

Subprogramme 1.1.1 Strengthening Integrated Engineering Support for Nuclear Power Programmes

***Objectives*:**

- *To support Member States in the safe, secure, efficient and reliable long term operation of NPPs.*
- *To support Member States in effective operation, maintenance and engineering processes for new NPP projects.*

Outcomes	Performance Indicators
• Increased Member State use of Agency information, resources and services for NPP performance and sustainability.	• Number of Member States using Agency publications on NPP performance and sustainability. • Number of Member States participating in training conferences and symposia on NPP performance and sustainability.
• Increased Member State use of Agency information, resources and services for the implementation of new nuclear power projects.	• Number of Member States accessing Agency guidance and requesting Agency services to support efficient and effective implementation of new NPP projects.

Projects

Title	Main Planned Outputs
1.1.1.001 Engineering support for operating nuclear power plants	Publications on specific aspects of ageing management; exchange of information and national experience among Member States through Technical Meetings, workshops and conferences for the promotion of networking in the field of NPP operation; Fifth International Conference on Nuclear Power Plant Life Management (to be held in 2022).
1.1.1.002 Engineering support for expanding and new nuclear power projects	Publications on specific aspects of expanding nuclear power projects; exchange of information and national experience among Member States through Technical Meetings and workshops in the field of NPP construction management and technology.

Subprogramme 1.1.2 Management and Human Resource Development for Nuclear Power Programmes

Objectives:

— *To support Member States in the development of management, human resource development, capacity building, project management, leadership, management systems, supply chains, stakeholder involvement, and training and qualification for the construction and operation of NPPs.*

Outcomes	Performance Indicators
• Increased Member State capabilities for development and implementation of management systems for construction and operation of NPPs.	• Number of Member States using Agency resources for the development and implementation of management systems in their organizations.
• Increased Member State use of Agency resources for development and implementation of stakeholder involvement strategies.	• Number of Member States using Agency resources for the development and implementation of stakeholder involvement strategies.
• Increased Member State use of Agency resources for implementation of human resource development strategies, including workforce planning, and training and qualification systems for construction and operation of NPPs.	• Number of Member States using Agency resources for the implementation of human resource development strategies.

Projects

Title	Main Planned Outputs
1.1.2.001 Support to management systems, leadership and stakeholder involvement	Agency guidance documents, training courses, workshops, e-learning modules, webinars and completed review services.
1.1.2.002 Human resource development for nuclear power programmes	Agency guidance documents, training courses, workshops, e-learning modules, webinars, modelling tools and completed review services.

Subprogramme 1.1.3 Integrated Support for Nuclear Power Programme Infrastructure Development

Objectives:

- *To support Member States in improving their understanding of the responsibilities and obligations essential to implementing safe, secure, efficient and reliable nuclear power programmes.*
- *To support Member States in developing, in a phased manner, the necessary infrastructure to enable the introduction of nuclear power.*
- *To provide integrated and coordinated Agency support to Member States embarking on a nuclear power programme.*

Outcomes	Performance Indicators
• Improved national plans, based on the gaps identified, aligned with the international good practices reflected in the Milestones approach.	• Number of requests from Member States for INIR missions. • Number of self-evaluation reports and action plan progress reports submitted.
• Contribution to an improved understanding of specific nuclear infrastructure issues in Member States relevant to different phases of programme development.	• Number of Technical Meetings, training courses and workshops addressing specific infrastructure issues. • Number of publications, training materials and distance learning courses addressing specific infrastructure issues.
• Enhanced integrated Agency support consistent with Member State needs.	• Number of Integrated Work Plans and Country Nuclear Infrastructure Profiles. • Number of Infrastructure Coordination Group and Nuclear Power Support Group meetings conducted.

Projects

Title	Main Planned Outputs
1.1.3.001 Nuclear power infrastructure development	Enhanced INIR methodology; conduct of INIR missions; development or update of Integrated Work Plans and Country Nuclear Infrastructure Profiles; coordination and integration of assistance to Member States embarking and expanding their nuclear power programmes.
1.1.3.002 Support to capacity building for nuclear power infrastructure	Enhanced training programmes (including on the Nuclear Power Human Resources Model tool, and e-learning), publications and information sharing activities (Technical Meetings, webinars and podcasts) for issues addressed in the Milestones approach; refinement of the Nuclear Infrastructure Development Section (NIDS) Interactive Platform, nuclear infrastructure bibliography and nuclear power competency framework; expert reviews on specific infrastructure issues (policies and strategies, integrated management systems, etc.).

Subprogramme 1.1.4 International Project on Innovative Nuclear Reactors and Fuel Cycles

Objectives:

- *To increase international dialogue and strengthen cooperation among Member States regarding the development of sustainable nuclear energy.*
- *To support Member States in analysing and assessing NES development from the front end to the back end of the nuclear fuel cycle.*

Outcomes	Performance Indicators
• Enhanced Member State understanding of, and cooperation on, actions to achieve NES sustainability in the 21st century.	• Number of Member States participating in INPRO collaborative projects the INPRO Dialogue Forum and training, and using INPRO tools, services and publications.
• Improved NES sustainability through Member State use of the INPRO toolset, including NES scenario modelling and analysis and the INPRO methodology to measure and track progress.	• Number of Member States using and contributing to development of INPRO tools (INPRO methodology and NES modelling and analysis tools).
• Strengthened Member State capacity for evaluating 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 States' knowledge and communication on NES sustainability.

Projects

Title	Main Planned Outputs
1.1.4.001 International project on innovative nuclear reactors and fuel cycles	Publications on NES scenario modelling; collaborative projects on NES innovations; application of INPRO methodology for NES sustainability assessment; introduction of a service for sustainable NES planning; INPRO Dialogue Forums on NES sustainability; related training and outreach, including INPRO schools and the university outreach initiative.

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

Objectives:

— *To support Member States in their efforts towards evolution and innovation in nuclear reactor technology and non-electric applications, in particular for their near-term deployment.*

— *To provide Member States with a collaborative framework for the development and deployment of advanced reactor technologies and their integration in clean energy systems, for safe, secure and sustainable use of nuclear power.*

— *To support Member States in the development and deployment of non-electric applications of nuclear power, including nuclear cogeneration, hydrogen and heat production, desalination and industrial applications of nuclear energy.*

Outcomes	Performance Indicators
• Enhanced Member State capacity for technology development and deployment of advanced reactors, non-electric applications of nuclear power and integrated energy systems.	• Number of Member States collaborating in the sharing of information; number of Member States using Agency guidance and services to develop and deploy their advanced reactor technologies and non-electric applications of nuclear power.
• Strengthened Member State capacity building and human resource development capabilities in the area of advanced reactors and non-electric applications.	• Number of Member States using Agency expertise for conducting workshops and training.
• Increased international cooperation on technology development for advanced reactors and non-electric applications.	• Number of institutions and organizations in Member States participating in CRPs and other innovation-oriented activities.

Projects

Title	Main Planned Outputs
1.1.5.001 Technology development for advanced water cooled reactors	Publications of reports; databases; CRPs and Collaborating Centres dealing with AWCR technology advancements; Technical Meetings and workshops; expert missions under the technical cooperation programme; training courses and training materials, e-learning modules.

Title	Main Planned Outputs
1.1.5.002 Technology development for small and medium sized or modular reactors	Technical Meetings; workshops; CRPs; Collaborating Centres; e-tools; toolkits; databases; publications on key technologies, validation testing, design features, generic utility requirements and criteria and topics of common technical interest for SMRs (including HTGRs and other advanced technologies).
1.1.5.003 Technology development for fast reactors	Technical Meetings; workshops; education and training seminars; CRPs; Collaborating Centres; technical studies; Agency publications; status reports; websites; databases; e-platforms; and simulators related to research and technology development and deployment of fast nuclear systems.
1.1.5.004 Non-electric applications of nuclear power	Technical Meetings; workshops; Nuclear Energy Series publication on vendor–user interface in nuclear cogeneration projects; release of updated and improved Agency tools on hydrogen production, nuclear desalination and water management; CRPs on nuclear hydrogen production, nuclear desalination and nuclear cogeneration.

Programme 1.2 Nuclear Fuel Cycle and Waste Management

Programme 1.2 supports Member States in the efficient and sustainable use of nuclear technologies, including access to research reactors; fuel cycle for power reactors and research reactors; management of waste arising from all nuclear applications and energy production; life management of fuel cycle and waste management facilities and research reactors; transportation of radioactive material; decommissioning of all power and non-power nuclear related facilities; and environmental remediation. Among others, the concept of the circular economy is being given due consideration in the programme.

Sharing of information and capacity building are priorities in all areas of the programme. With growing interest in peaceful applications of nuclear science and technology, including nuclear power, demand for strategies, approaches and reference information on good practices in the above-mentioned areas is increasing. The retirement of nuclear facilities, as well as the policy of upfront planning in this regard, generates an increased demand for effective solutions for decommissioning and waste management.

In order to enlarge the impact of its activities, the programme will increase outreach and access to information and good practices through further developing virtual and web-based tools, such as e-learning modules, databases, wikis and web-based networks of practitioners, and widening their availability in different languages; encourage and support the development of centres of reference in each region dealing with topics such as DSRS management, decommissioning and research reactors; and further strengthen coordination within the Secretariat to provide Member States with a comprehensive approach as well as integrated services in relevant areas.

Lessons learned from reviews, assessments and evaluations: Implementing cross-cutting projects requires proper intra- and inter-Departmental cooperation to cover the different aspects. Progress has been made in addressing the impact of the design and operation of nuclear facilities and innovative reactors on the fuel cycle, radioactive waste management, and decommissioning. Efforts to further enhance inter-Departmental cooperation will continue. The substantial increase in demand for services under the technical cooperation programme requires further enabling Technical Officers to maximize their focus on delivery of technical outputs to Member States as opposed to concentrating on administrative tasks. Peer reviews benefit from the availability of reference publications and information resources, as well as from documented processes. Regular gap analyses are now performed to ensure completeness of such resources. The development of e-tools is successfully progressing. As a next step, e-tools will be promoted so that they can be more broadly used by Member States.

Specific criteria for prioritization:

1. Support Member States in capacity building and the transfer of experience, especially for those without (or with small) nuclear power programmes, including embarking countries.
2. Support Member States in the sustainable use of nuclear technologies, including safety and innovation, in the nuclear fuel cycle, nuclear facility life cycle up to decommissioning, waste management and research reactors.
3. Disseminate information through activities fostering international cooperation and the development and promotion of e-tools such as e-learning modules, wikis, databases and networks.

Programmatic Changes and Trends

Subprogramme 1.2.1 Uranium Resources and Processing will continue to support Member States in improving their capacity to understand, plan and develop activities in the uranium (and thorium) production cycle, as their interest remains strong. This subprogramme will also ensure the safe operation of the IAEA Low Enriched Uranium (LEU) Bank in Kazakhstan to facilitate the supply of LEU, upon request, to Member States experiencing disruption, in accordance with established Agency rules and procedures.

Subprogramme 1.2.2 Nuclear Power Reactor Fuel and Fuel Cycle Facilities will continue to inform Member States about emerging technologies in the field of advanced nuclear fuels for light and heavy water reactors and fast reactors (including SMRs), as well as HTGRs, and related materials, and to support Member States in addressing the challenges of industrial deployment of such fuels by disseminating technical publications on their design, fabrication, operational challenges and in-reactor performance assessment. It also supports Member States in understanding the factors affecting the ageing of existing (and future) nuclear fuel cycle facilities and addressing technical challenges when operating or upgrading these facilities (e.g. improvement of instrumentation and control systems, quality control measurements, and environmental impacts), by documenting and disseminating best practices in these areas.

Subprogramme 1.2.3 Management of Spent Fuel from Nuclear Power Reactor and Radioactive Material Transportation will continue to meet the needs of Member States (both with operating NPPs and newcomers) in addressing issues and technological challenges related to the management of their spent nuclear fuel, from current and next generation nuclear reactors (including water cooled, high temperature gas cooled and fast reactors, as well as SMRs), regardless of the strategies (options and schedules) they have adopted for the management of their spent fuel (i.e. direct disposal or reprocessing, with a possible emphasis on complete actinide recycling). It comprises activities on spent fuel storage, transportation and recycling, in line with the conclusions of the International Conference on the Management of Spent Fuel from Nuclear Power Reactors, held in June 2019. It also covers activities on the transportation of all kinds of radioactive material, through documentation on existing and emerging technologies, and the sharing of best practices among Member States.

Subprogramme 1.2.4 Radioactive Waste Management will continue to support Member States in carrying out their responsibility to manage any waste arising from the use of radioactive techniques in a safe and effective manner, in line with SDG 12 (on responsible consumption and production). Demand for support in this area remains at a high level.

Subprogramme 1.2.5 Decommissioning and Environmental Remediation was created in the 2018–2019 cycle in response to a growing request for guidance and support from Member States in these areas. This subprogramme will be further strengthened in 2022–2023.

Subprogramme 1.2.6 Research Reactors has been relocated to Programme 1.2 from Programme 1.4. It will continue to address the main challenges related to sustainable operation, including long term operation of research reactors, supporting regional and interregional collaboration through coalitions, networking and ICERRs to enhance performance and access to research reactors. The subprogramme also supports Member States in improving operation and maintenance in order to optimize the operational performance of research reactors; disseminating good practices in modernization, refurbishment and ageing management; planning and implementing research reactor modifications, including utilization-related ones; national planning and implementation of a first or new research reactor; spent fuel management; using and accessing 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 transitioning away from the use of high enriched uranium in research reactors, upon Member State request.

Objectives, Outcomes and Performance Indicators by Programme

Programme 1.2 Nuclear Fuel Cycle and Waste Management	
Objectives:	
— *To support Member States in establishing effective, safe, secure and sustainable frameworks and solutions for the fuel cycle, radioactive waste management, decommissioning and life cycle management of related facilities, including research reactors, for nuclear programmes and nuclear applications.* — *To support Member States in strengthening their capabilities and human resources in the domains of fuel cycle, radioactive waste management, decommissioning and environmental remediation, and research reactors.* — *To be a platform to facilitate and strengthen international cooperation, coordination and information sharing among Member States.*	
Outcomes	**Performance Indicators**
• Increased Member State use of Agency information, resources and services for the establishment and continuous improvement of policy frameworks and for the implementation of effective and sustainable solutions in the domains of the programme.	• Number of Member States using Agency reference resources. • Number of Member States requesting or providing experts in peer review services, such as the Integrated Review Service for Radioactive Waste and Spent Fuel Management, Decommissioning and Remediation (ARTEMIS), Operation and Maintenance Assessment for Research Reactors (OMARR), Integrated Nuclear Infrastructure Review for Research Reactors (INIR-RR) and Uranium Production Site Appraisal Team (UPSAT).
• Enhanced Member State capacity and knowledge, including programme management.	• Number of users of e-learning modules and other online training materials. • Number of Member States participating in Technical Meetings, workshops, forums and networks.
• Improved international cooperation in the fields of nuclear fuel cycle, radioactive waste management, research reactors, decommissioning and environmental remediation.	• Number of Member States participating in relevant CRPs. • Number of designated collaborative and reference centres.

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 (and thorium) production cycle(s).* — *To contribute to energy supply security by facilitating the supply of LEU, upon request, to Member States experiencing disruption for non-commercial reasons, via the IAEA LEU Bank.*	
Outcomes	**Performance Indicators**
• Improved Member State information on and knowledge of the uranium (and thorium) production cycle(s) by ensuring their access to accurate information, data and references on global uranium (and thorium) resources.	• Joint Nuclear Energy Agency of the Organisation for Economic Co-operation and Development (OECD/NEA)–IAEA publication entitled *Uranium: Resources, Production and Demand* issued and made available to Member States. • Number of new records relating to new and existing uranium (and thorium) deposits in the World Distribution of Uranium Deposits (UDEPO) (and World Thorium Deposits and Resources (ThDEPO)) databases.
• Improved Member State understanding and implementation of best practices in the uranium (and thorium) production cycle(s) (resources, exploration and production).	• Number of participants in Agency meetings related to good practices in the uranium (and thorium) production cycle(s). • Person-hours of training imparted through training courses on good practices in the uranium (and thorium) production cycle(s).

Outcomes	Performance Indicators
• Member States provided with assurance of supply of LEU, through the operation of the IAEA LEU Bank in compliance with GOV/2010/67.	• IAEA LEU Bank remains operational and ready for supply to eligible Member States, upon request.

Projects

Title	Main Planned Outputs
1.2.1.001 Exploration, mining and processing	International Symposium on Uranium Raw Material for the Nuclear Fuel Cycle: Innovation for Sustaining Future Resources and Production (to be held in 2023); meetings, training workshops (through the technical cooperation programme), reports and TECDOCs promoting good practices in uranium and thorium production cycles (from exploration to milling); e-tools (Uranium Production Cycle Network web platform, e-learning modules) and peer review services for a phased approach in uranium mining to assist Member States requesting technical cooperation support.
1.2.1.002 Resources data analytics	Biennial publication of the joint OECD/NEA–IAEA publication entitled *Uranium: Resources, Production and Demand*; e-tools; well-maintained and updated uranium and thorium deposits databases (UDEPO, ThDEPO).
1.2.1.003 Low Enriched Uranium Bank	Operation of the IAEA LEU Bank in accordance with GOV/2010/67 and GOV/2010/70.

Subprogramme 1.2.2 Nuclear Power Reactor Fuel and Fuel Cycle Facilities

Objectives:

— *To support Member States in understanding and addressing the factors affecting the design, fabrication and in-pile behaviour of existing and innovative nuclear fuels and materials for water cooled and fast reactors (including SMRs), as well as HTGRs.*

— *To support Member States in identifying and implementing technical measures, in compliance with IAEA safety standards, when operating or upgrading existing nuclear fuel cycle facilities.*

Outcomes	Performance Indicators
• Improved Member State understanding of research and development (R&D) challenges in the design, manufacture and operation of existing and advanced innovative fuels for water cooled and fast reactors (including SMRs).	• Number of experts participating in Agency events on R&D challenges in design, manufacture and operation/performance assessment of currently deployed and advanced innovative fuels for water cooled and fast reactors (including SMRs). • Number of Member States participating in CRPs on the topic.
• Improved Member State understanding of technical issues related to the ageing and upgrading of nuclear fuel cycle facilities.	• Number of participants in Agency events on technical issues related to the ageing and upgrade of nuclear fuel cycle facilities.

Projects

Title	Main Planned Outputs
1.2.2.001 Nuclear power reactor fuel engineering and operation	CRPs; meetings; publications (TECDOCs, Nuclear Energy Series publications) and e-learning modules on the development and operational challenges of existing and innovative fuels for current and new generation nuclear power reactors (light and heavy water reactors and fast reactors, including SMRs and HTGRs) and related core materials; development of the NFE-Network.
1.2.2.002 Fuel cycle facilities operation and life management	Publications on technical issues and best practices related to the daily operation of nuclear fuel cycle facilities (especially upgraded or ageing facilities), the management of their life cycle and the improvement of the efficiencies of their processes (e.g. waste minimization or scraps recycling).

Subprogramme 1.2.3 Management of Spent Fuel from Nuclear Power Reactor and Radioactive Material Transportation

Objectives:

- *To support Member States in understanding and addressing the challenges of effective and safe management of their spent nuclear fuels (through dry or wet storage) at operating or prematurely shut-down sites.*
- *To facilitate discussion and sharing of information among Member States on recent and future developments in fuel recycling technologies for current and next generations of nuclear power reactors (including SMRs).*
- *To support Member States in understanding and addressing the issues related to the safe transportation of all kinds of radioactive materials used or generated by nuclear fuel cycle activities.*

Outcomes	Performance Indicators
• Improved Member State understanding of, and capabilities for addressing, the challenges of effective and safe management of their spent nuclear fuel through dry and/or wet storage at operating or prematurely shut-down sites.	• Number of participants in Agency events on the safe management of spent fuel. • Number of Member States participating in CRPs.
• Increased Member State participation in activities related to fuel recycling technologies.	• Number of Member States participating in Agency activities on fuel recycling technology developments.
• Increased Member State understanding of effective and safe transport of radioactive materials used or generated by the fuel cycle.	• Number of participants in Agency meetings on effective and safe transportation of all kinds of radioactive materials.

Projects

Title	Main Planned Outputs
1.2.3.001 Spent fuel storage	Agency publications (Nuclear Energy Series publications, TECDOCs) and wikis on spent fuel inventories and storage technologies; coordination of research projects on performance assessment, on the demonstration of safe long term storage and on ageing management programmes of spent fuel; development of e-learning modules.
1.2.3.002 Spent fuel recycling	Technical Meetings on closed fuel cycle status and development and on advanced fuel cycles; CRP on advanced recycling paths; e-learning development.
1.2.3.003 Radioactive materials transportation	TECDOCs on technical and operational challenges related to the transportation of high burnup and mixed oxide fuels, on the transportability of spent fuel after long storage periods, including the societal aspects of spent fuel transportation to storage facilities, and on the lessons learned from and good practices in spent fuel and high level waste transportation worldwide; e-learning material and wiki on the topic (including case studies).

Subprogramme 1.2.4 Radioactive Waste Management

Objectives:

- *To support Member States in strengthening their infrastructure and capabilities towards a comprehensive radioactive waste management (RWM) programme.*
- *To contribute to Member States' exchange of knowledge about current practices in RWM and to support effective progress in this area.*

Outcomes	Performance Indicators
• Strengthened Member State infrastructure and capabilities for effective RWM.	• Number of Member States having contributed to the Spent Fuel and Radioactive Waste Information System (SRIS) and to *Status and Trends in Spent Fuel and Radioactive Waste Management* publication. • Number of Qualified Technical Centres (QTCs) for the management of DSRSs established.

Projects	
Title	**Main Planned Outputs**
1.2.4.001 Predisposal management	Publications; e-tools, including professional networks; courses and workshops; cooperation with international organizations.
1.2.4.002 Waste disposal	Publications; e-tools; training course material; meetings, courses and workshops; cooperation with other international organizations; secretariat services for international networks of professionals focused on disposal.
1.2.4.003 Managing disused sealed radioactive sources (DSRSs)	Guidance documents; training; databases; professional networks; field missions; inputs for other organizations regarding all aspects of DSRS management; establishment of QTCs for the management of DSRSs.
1.2.4.004 Capacity building and knowledge sharing	E-tools and web-based systems; training course material; sharing of information with other international organizations on synergies between respective programmes.

Subprogramme 1.2.5 Decommissioning and Environmental Remediation

Objectives:

- *To support Member States in strengthening their capabilities for, and improving their practices in, the decommissioning of nuclear installations and remediation of contaminated sites.*
- *To facilitate experience sharing and knowledge transfer on effective applications of practical measures in the decommissioning of nuclear installations and environmental remediation of contaminated sites.*

Outcomes	Performance Indicators
• Increased awareness in Member States of decommissioning needs and issues, as well as of available options, solutions and good practices for ensuring sustainable decommissioning and environmental remediation based on circular economy principles.	• Number of case studies on nuclear decommissioning and environmental remediation contributed to the relevant wikis by organizations from Member States. • Number of requests from Member States for expert review or peer review services on issues related to decommissioning and environmental remediation per year (except requests under the ARTEMIS-EC framework).
• Enhanced capabilities of Member States to have in place proper human resources, infrastructure and technologies for the decommissioning of nuclear installations and remediation of contaminated sites.	• Number of Member States offering experts for peer review and expert review services on decommissioning and environmental remediation issues. • Number of Collaborating Centres for decommissioning.

Projects	
Title	**Main Planned Outputs**
1.2.5.001 Decommissioning	Publications; activities organized within the practitioners' community (including the International Decommissioning Network); decommissioning wiki and e-learning module development; update of decommissioning databases; cooperation with other international organizations; cross-cutting activities; outreach to attract the young generation, in particular women, to decommissioning-related education and work; support for capacity building in Member States; International Conference on Nuclear Decommissioning: Addressing the Past and Ensuring the Future (to be held in 2023).
1.2.5.002 Environmental remediation	Publications; activities organized within the practitioners' community (including the Network on Environmental Management and Remediation); environmental remediation wiki and e-learning module development; cooperation with other international organizations; cross-cutting activities; outreach to attract the young generation, in particular women, to environmental remediation-related education and work; support for capacity building in Member States.

Subprogramme 1.2.6 Research Reactors	
Objectives:	
— *To support Member States in enhancing sustainable operation and performance of existing research reactors.* — *To support Member States in nuclear capacity building through the use of, and access to, research reactors.* — *To support Member States in planning and implementing new research reactor projects, including the development of their national infrastructure.*	
Outcomes	**Performance Indicators**
• Increased Member State understanding and use of Agency services for sustainable operation and improved performance of existing research reactors, as well as effective implementation of new research reactor projects.	• Number of peer review services related to sustainable operation of research reactors and infrastructure development (e.g. OMARR missions and INIR-RR missions) requested by Member States.
• Increased Member State use of, and access to, research reactors for developing their national nuclear programmes and strategies, including for developing human resources.	• Number of Member States engaged as providers in Agency capacity building initiatives based on research reactors (ICERR, hands-on training courses, IRL). • Number of Member States engaged as beneficiaries in Agency capacity building initiatives based on research reactors (ICERR, hands-on training courses, IRL).
Projects	
Title	**Main Planned Outputs**
1.2.6.001 Access to research reactors, capacity building and infrastructure development	Support to Member States embarking on new research reactor projects through workshops and expert missions (including INIR-RR missions); delivery of tools for capacity building based on research reactors (ICERR, hands-on training courses, IRL); development of relevant publications; International Conference on Research Reactors: Achievements, Experience and the Way to a Sustainable Future (to be held in 2023).
1.2.6.002 Research reactor fuel cycle	Support to Member States on research reactor fuel cycle issues; sharing experience and knowledge through CRPs, training courses, expert missions and the Research Reactor Database; publications; conversion of research reactor fuel and irradiation targets from high to low enriched uranium and return of high enriched uranium fuel to the country of origin, upon Member State request.
1.2.6.003 Research reactor operation, performance and upgrade	Support to Member States in research reactor operation and life management through training workshops, CRPs and expert missions including OMARR missions, and through the Research Reactor Ageing Database, Research Reactor Material Properties Database and other relevant delivery tools for experience and knowledge sharing; publications.

Programme 1.3 Capacity Building and Nuclear Knowledge for Sustainable Energy Development

Programme 1.3 supports interested Member States in formulating sustainable energy strategies and improving the understanding of the unique role of nuclear energy in addressing the SDGs through capacity building using improved energy models, comprehensive information repositories and tailored training tools.

The programme also supports Member States in preserving nuclear knowledge and implementing effective nuclear knowledge management programmes, including through dissemination of information, fostering education networking, offering targeted training and services, and providing Member States with knowledge management methodologies and guidance. It encompasses the Agency's International Nuclear Information System (INIS) and the IAEA Library, which continue to provide comprehensive, authoritative and reliable information and data to support Member States in increasing their capacity for the peaceful uses of nuclear technologies. The programme coordinates the implementation of the IAEA Marie Skłodowska-Curie Fellowship Programme (MSCFP), which

will provide scholarships for up to 100 selected applicants annually, to help increase the number of qualified young women in the nuclear field.

Lessons learned from reviews, assessments and evaluations: Taking into account feedback from Member States, energy planning analytical tools are periodically assessed, upgraded and optimized to ensure their adaptiveness to the development of the SDGs and the Paris Agreement. Further scientific studies and broad cooperation with international partners will be undertaken to establish nuclear energy's indispensable role in achieving the SDGs, combating climate change and facilitating the clean energy transition. With the upgrade and improvement of the Cyber Learning Platform for Network Education and Training (CLP4NET), a more hybrid training mechanism will be considered in capacity building services, including Nuclear Energy Management (NEM) and NKM schools, to address increasing demands of Member States and budget constraints. Taking into account the extent to which a Member State is pursuing nuclear power and nuclear applications, tailored information and knowledge management services will be continuously developed and provided in a holistic approach. INIS is recognized as a global nuclear information repository system and efforts will continue to maintain the efficacy of this platform.

Specific criteria for prioritization:

1. Improved analytical tools and integrated approaches to support Member States in forming science-based energy policies and making informed decisions with regard to facilitating the clean energy transition, mitigating and adapting climate change and achieving the SDGs and climate targets.
2. Optimized and standardized learning modules, a tailored knowledge management service and a hybrid delivery mechanism for effectively and efficiently supporting the increasing needs of Member States.
3. A comprehensive, reliable, accessible and up-to-date nuclear information source with the support of modern information technology.

Programmatic Changes and Trends

Subprogramme 1.3.1 Energy Modelling, Data and Capacity Building will strengthen the provision of support to Member States in integrating the SDGs and Paris Agreement targets through national and regional energy studies. Energy planning models will be further assessed, upgraded and integrated to adapt to the need for multiple-objective evaluation. Development activities will continue to be informed through feedback from Member States and international organizations using these tools. E-learning content will be expanded and promoted through standardized Agency platforms, and will be used in combination with face-to-face training. Energy and technology data sharing with other United Nations agencies and international organizations will be further expanded.

Subprogramme 1.3.2 Energy Economy Environment (3E) Analysis will strengthen the provision of support to Member States in the assessment of uses of nuclear energy within the context of the SDGs and climate objectives, as well as the transition to clean energy systems. Areas of the subprogramme include efforts to understand the economics of nuclear energy in markets with increased shares of renewable energy; to establish guidelines, tools and approaches for developing consistent cost estimates of nuclear energy technology and fuel cycle costs, and to continue development of nuclear cost modelling capabilities in partnership with other international organizations; to support the adoption and application of integrated assessment methods and approaches, particularly for newcomer countries; and to assist Member States in assessing their climate change mitigation and adaptation strategies in the power sector, as well as approaches to address the SDGs, under a range of deployment scenarios.

Subprogramme 1.3.3 Nuclear Knowledge Management will continue to expand the provision of support to Member States through NEM and NKM Schools, the International Nuclear Management Academy, the Knowledge Management Assist Visit and the Human Resource and Knowledge Development networking initiative. Member State participation continues to increase in the Agency's NKM programmes, including nuclear education and networking activities, NKM and NEM Schools and e-learning tools, and material made available through CLP4NET. Priorities include NKM methodology development, supporting education at the university level with a focus on nuclear energy; knowledge organization system technology and life cycle management of design knowledge; and establishing and strengthening knowledge networks, such as technical communities of practice. The subprogramme will also provide for a more integrated range of services for Member States seeking assistance and guidance across the full education, training, human resource development and NKM life cycle.

Subprogramme 1.3.4 Nuclear Information will continue to gather and make available to Member States and to the Secretariat authoritative, validated, up-to-date nuclear information on the peaceful use of nuclear energy through INIS, the IAEA Library and the International Nuclear Library Network (INLN). It will also provide access to the OECD/NEA Data Bank for Agency Member States that are not members of OECD/NEA.

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 for formulating robust energy strategies, plans and programmes, and to improve their understanding of nuclear energy's contribution to facilitating the clean energy transition, combating climate change and achieving the SDGs.* — *To support Member States in strengthening their capacities for establishing, managing and using their nuclear knowledge base and to foster international networking.* — *To acquire, preserve and provide Member States with access to information in the area of nuclear science and technology and to facilitate sustainable information sharing among Member States.*	
Outcomes	**Performance Indicators**
• Strengthened Member State capacity in energy planning and understanding of the potential role of nuclear power under the Paris Agreement and broader sustainable energy strategies.	• Number of professionals from Member States trained in the use of Agency energy models. • Number of instances where the Agency's economic or 3E analysis relating to nuclear technology are requested or incorporated into the decision making process of Member States and other international organizations.
• Strengthened Member State capacity in NKM.	• Number of Member States using or requesting Agency methodology and guidance for their NKM programmes, initiatives or projects. • Number of Member States participating in Agency-supported nuclear education networks.
• Increased Member State access to nuclear information provided by the IAEA Library and INIS.	• Number of INIS repository web page views. • Number of IAEA Library catalogue searches.

Subprogramme 1.3.1 Energy Modelling, Data and Capacity Building	
Objectives:	
— *To support Member States in strengthening their capacities for formulating robust energy strategies, plans and programmes for achieving the SDGs and mitigating climate change.*	
Outcomes	**Performance Indicators**
• Enhanced Member State capacity in designing energy strategies to meet the SDGs.	• Number of professionals from Member States trained, within the biennium, in the use of Agency energy models and planning tools.
• Improved Member State knowledge and understanding of 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 websites; publication of *Energy, Electricity and Nuclear Power Estimates for the Period up to 2050* (Reference Data Series No. 1).
1.3.1.002 Models and capacity building for energy and nuclear power planning	Technical support for Member State energy planning studies offered online or through fellowships; 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 their understanding of the potential roles of nuclear energy in achieving the SDGs and mitigating climate change, including evaluating economic aspects such as costs of current and advanced reactor concepts, funding/financing and integration with renewables in future energy markets.*
- *To support Member States in their understanding of the nexus between SDG7 and other SDGs, including in developing integrated assessment frameworks (e.g. climate, land, energy, water) and in assessing the effect of government policy mechanisms on investment in low carbon technologies such as nuclear power.*

Outcomes	Performance Indicators
• Increased Member State and international organization use of Agency tools to improve understanding of the role of nuclear power in climate change and sustainable energy development.	• Number of instances in which the Agency's economic or 3E analysis relating to nuclear technology are requested or incorporated into the decision making process of Member States and international organizations.
• Increased Member State awareness of the potential role of nuclear energy in contributing to sustainable development and combating climate change.	• Number of publications and presentations on the potential role of nuclear energy in achieving the SDGs and Paris Agreement objectives.

Projects

Title	Main Planned Outputs
1.3.2.001 Technoeconomic analysis	Economic studies and reports (cost assessment methodologies, comparisons, business case composition, macroeconomic impact, funding/financing options and cost–benefit analyses) on various issues in nuclear energy development and deployment, including innovative nuclear systems and SMRs; comparative assessments of energy systems or their attributes.
1.3.2.002 Topical issues related to sustainable energy development	Reports and presentations on the potential contribution of nuclear energy to SDG 7 and the Paris Agreement objectives; case studies analysing sustainable energy and low carbon energy development strategies and policies focusing on the potential for nuclear energy in energy systems with variable renewables and energy markets beyond electricity; second International Conference on Climate Change and the Role of Nuclear Power (to be held in 2023).

Subprogramme 1.3.3 Nuclear Knowledge Management

Objectives:

- *To support Member States in their application and implementation of national nuclear knowledge management strategies and approaches, including for integrated NKM and human resource development programmes.*
- *To contribute to improving Member State knowledge in applying advanced technologies for sustainable nuclear information management throughout the life cycle.*
- *To support Member States in strengthening academic education in the areas of nuclear technology management; nuclear engineering; nuclear science and applications; networking, collaboration and methodology development; and resource development and sharing.*

Outcomes	Performance Indicators
• Increased Member State capability in the application of NKM strategies and approaches and in the implementation of national- or organizational-level programmes.	• Number of Member States using or requesting Agency methodology and guidance for their NKM programmes, initiatives or projects. • Number of participants from Member States participating in the development, sharing or dissemination of Agency methodology and tools.

Outcomes	Performance Indicators
• Strengthened academic nuclear education in Member States in the areas of nuclear management, nuclear engineering, and nuclear science and applications, as well as increased Member State engagement in nuclear education networks.	• Number of new Member State organizations using or requesting Agency methodology and guidance for their nuclear education curricula improvement programmes or initiatives. • Number of new Member State organizations 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 particular NKM topics; specialist NKM publications, methodologies and services to Member States associated with Knowledge Management Assist Visits; support missions and workshops.
1.3.3.002 Facilitating sustainable education in nuclear science and technology	One international NKM School and one international NEM School per year; regional schools, as requested by Member States; publications on nuclear education; International Nuclear Management Academy programme activities; annual regional and interregional meetings to facilitate networking for nuclear education; additional e-learning opportunities for Member States; International Conference on Nuclear Knowledge Management and Human Resources Development: Challenges and Opportunities (to be held in 2022).
1.3.3.003 Nuclear knowledge organizational systems and technology	Knowledge management platforms for collaboratively managing NKM support services, activities, documentation, databases and IT-related tools.
1.3.3.004 IAEA Marie Skłodowska-Curie Fellowship Programme	Award of 100 MSCFP scholarships every year to applicants that meet the selection criteria; promotional and outreach material.

Subprogramme 1.3.4 Nuclear Information

Objectives:

— *To provide Member States with access to authoritative, validated and up-to-date information in the area of nuclear science and technology.*

— *To facilitate the sustainable sharing of information generated by Member States on peaceful uses of nuclear energy.*

Outcomes	Performance Indicators
• Increased Member State access to authoritative and validated information and data on peaceful uses of nuclear science and technology through the INIS.	• Number of records available in the INIS repository. • Number of INIS repository web page views.
• Increased Member State access to relevant, reliable and up-to-date library resources.	• Annual number of information resources acquired by the IAEA Library (books, articles, documents, databases). • Number of IAEA Library catalogue searches.
• Increased membership and use of the 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 information resources in print and electronic format, including monographs and serial publications; research support, reference services and training sessions; operational and active INLN.
1.3.4.002 INIS collection and services	Openly accessible, up-to-date, contextually relevant and trusted digital repository of INIS bibliographic and full text documents; cooperation and information exchange with national INIS centres; high-quality thesaurus using relevant knowledge organization standards.

Programme 1.4 Nuclear Science

Programme 1.4. supports Member States in the provision of nuclear, atomic and molecular data; research reactor and particle accelerator applications; R&D in nuclear fusion; and nuclear instrumentation. The Agency's nuclear, atomic and molecular data libraries on all nuclear applications are evolving and continuously updated. The programme supports Member States in applications of neutrons using both research reactor and accelerator sources, and accelerator technologies for a broad range of applications benefiting Member States' environmental and socio-economic welfare. The IAEA has a role in facilitating and supporting R&D in fusion worldwide. Advances in nuclear fusion research have led to increased interest in some Member States in this field, and this programme facilitates the exchange of information on fusion research among Member States, with the ITER Organization, and through demonstration fusion power plant workshops (DEMO Programme Workshops). Finally, through this programme, financial support is provided to the ICTP, with the aim of enabling scientists from developing countries to enhance their research capabilities. In this biennium, support will be expanded to a larger number of ICTP activities of programmatic relevance to the Agency.

Lessons learned from reviews, assessments and evaluations: Nuclear fusion has the potential to be a future source of energy, and the Agency's assistance in bringing Member States together for research and dissemination of knowledge is vital. It is also important to provide support to Member States in the effective and sustainable utilization of particle accelerators and neutron sources, including research reactors, as these are vital for several applications, including capacity building in nuclear sciences and engineering. Such efforts help accelerate developing countries to transition to knowledge-based economies.

Specific criteria for prioritization:

1. Support Member State capacity building in nuclear science through international cooperation to address emerging needs in power and non-power industries.
2. Foster international cooperation and information exchange in nuclear fusion research and plasma physics.
3. Provide nuclear, atomic and molecular data services.
4. Provide laboratory services, advanced training and materials for human resource development.
5. Support Member States in strengthening sustainable utilization of accelerators, research reactors and other neutron sources.

Programmatic Changes and Trends

Subprogramme 1.4.1 Atomic and Nuclear Data will continue its focus in the areas of nuclear and atomic data evaluation and compilation, provision of data services to Member States, close cooperation with collaborating Nuclear Data Centres, and support for the exchange of information. The key steps in the production of databases include modelling and measurements, evaluation, processing, benchmarking and validation. These steps are typically supported by a large number of experts, many of whom are from outside the Agency, over a long period of time. The subprogramme will follow up on the trend of using artificial intelligence and machine learning techniques to improve atomic and nuclear data for applications and to respond to data requests for the programmatic needs of the Agency's technical Departments, including the Department of Safeguards. A challenge will be to improve the gender balance within this male-dominated field, and initiatives will be launched to do so. This will be combined with new efforts of data library development, helping to combat climate change and support medical radioisotope production.

Subprogramme 1.4.2 Research and Applications with Accelerators and Neutron Sources was previously part of one subprogramme encompassing both accelerator applications and nuclear instrumentation. The former subprogramme was split into two independent subprogrammes, i.e. 1.4.2 and 1.4.3. Subprogramme 1.4.2 has preserved the area of research and applications of particle accelerators, but has also incorporated research reactor utilization aspects, in addition to accelerator-based neutron sources. There is a clear linkage and complementarity between this subprogramme and Subprogramme 1.4.3, and both will continue to support Member States in the development and utilization of diverse research facilities with associated nuclear instrumentation in a broad range of applications.

Subprogramme 1.4.3 Nuclear Instrumentation was previously part of one subprogramme encompassing both accelerator applications and nuclear instrumentation. The former subprogramme was split into two independent subprogrammes, i.e. 1.4.2 and 1.4.3. Subprogramme 1.4.3. has preserved the area of nuclear instrumentation and will continue to support Member States in the development and utilisation of nuclear instrumentation in adaptive research and a broad range of applications, the scope being enlarged by the recent development of neutron based analytical techniques using compact neutron generators in Seibersdorf.

Subprogramme 1.4.4 Nuclear Fusion Research and Technology will continue to facilitate information dissemination and knowledge transfer in the area of fusion research among Member States and support cross-cutting activities, such as a joint CRP on the use of ion beams for irradiation and characterization of materials relevant to fusion technology. The continuation of periodic DEMO Programme Workshop series, the Fusion Energy Conference and other key activities, including those in cooperation with the ITER Organization, will enhance international cooperation in nuclear fusion overall. To ensure inter-Departmental coordination of fusion-related activities, the Nuclear Fusion Coordination Committee was established in 2018.

Subprogramme 1.4.5 Support to the Abdus Salam International Centre for Theoretical Physics will support Member States, in particular developing countries, in enhancing their scientific capability in nuclear sciences and technologies, both for power and non-power applications While ICTP R&D activities have, in the past few years, grown beyond basic theoretical physics areas, not all of these are of relevance to the Agency. Therefore, the Agency's contribution focuses on the areas of mutual relevance and benefit, such as basic and applied nuclear sciences, nuclear energy and nuclear safety and security.

Objectives, Outcomes and Performance Indicators by Programme

Programme 1.4 Nuclear Science	
Objectives:	
— *To support Member States in strengthening their capabilities in the development and application of nuclear science as a tool for their technological and socio-economic development.* — *To support Member States in enhancing sustainable operation and effective utilization of particle accelerators and neutron sources, as well as effective utilization of research reactors, increasing opportunities for access to these facilities and their diverse applications, and in developing relevant qualified professionals.*	
Outcomes	**Performance Indicators**
• Increased Member State capacity in the area of nuclear science for technological and socio-economic advancement.	• Number of scientific events conducted. • Number of participants in the scientific events, workshops and training courses on nuclear science.
• Increased Member State knowledge of atomic and nuclear data, and capacity for sustainable and effective utilization of particle accelerators and neutron sources, including research reactors.	• Number of reports and publications supported by the Agency and resulting from the use of particle accelerators and neutron sources, including research reactors. • Number of Member States accessing and retrieving atomic and nuclear data from Agency websites.

Subprogramme 1.4.1 Atomic and Nuclear Data	
Objectives:	
— *To support Member States in increasing their capabilities and expertise for the safe, secure and sustainable deployment of nuclear technologies by providing access to reliable nuclear and atomic data for nuclear power and non-power applications.*	
Outcomes	**Performance Indicators**
• Increased Member State access to atomic and nuclear data for nuclear power and non-power applications.	• Number of Member States accessing and retrieving atomic and nuclear data from Agency websites. • Number of retrieved atomic and nuclear datasets from Agency websites.
Projects	
Title	**Main Planned Outputs**
1.4.1.001 Provision of data services	Easy online access to data, with improved search, analysis, retrieval and visualization tools; documentation and reports to enable efficient data use; new and improved atomic and nuclear databases; coordinated data networks and training courses; support of data standards development.
1.4.1.002 Nuclear data developments	Update of the fission yield data library; evaluated files of important actinides and structural materials for the International Nuclear Data Evaluation Network (INDEN); an updated version of the Reference Input Parameter Library (RIPL-4) for nuclear fission reactions; nuclear data for medical isotope production.
1.4.1.003 Atomic and molecular data developments	Compilation of uncertainty data in the A Labelled Atomic Data Interface (ALADDIN) and the Atomic and Molecular Bibliographic Data System (AMBDAS) databases containing newly evaluated datasets as they become available; improved corresponding dissemination tools.

Subprogramme 1.4.2 Research and Applications with Accelerators and Neutron Sources	
Objectives:	
— *To support Member States in strengthening their capabilities to conduct research with accelerators and neutron sources.* — *To support Member States in strengthening their capabilities to expand the applications of accelerators and neutron sources.*	
Outcomes	**Performance Indicators**
• Strengthened Member State capability in establishing and sustaining well-functioning and optimized nuclear science infrastructures based on particle accelerators and neutron sources, including the development of relevant qualified professionals.	• Number of Member States represented in Agency meetings, workshops, e-learning courses and schools supported by the subprogramme. • Number of publications and reports supported by the subprogramme and resulting from utilization of accelerators and neutron sources.
• Increased capacity in Member States to access and utilize accelerators and neutron sources for research and diverse applications.	• Number of research groups from Member States participating in experiments. • Number of Member States requesting Agency assistance in enhancing the utilization of accelerator and neutron source facilities, in operation and maintenance issues, or in setting up new facilities.

Projects	
Title	**Main Planned Outputs**
1.4.2.001 Accelerator and neutron source applications in multiple disciplines	CRPs, Technical Meetings and workshops on a wide variety of accelerator and neutron source applications in different disciplines, with an emphasis on materials science and energy applications; Accelerator Knowledge Portal, databases and e-learning tools; Agency and non-Agency publications; International Conference on Accelerators for Research and Sustainable Development: Good Practices towards Socio-economic Impact (to be held in 2022); International Conference on Research Reactors: Achievements, Experience and the Way to a Sustainable Future (to be held in 2023).
1.4.2.002 Enhancing research with accelerators and neutrons	Experiments, training courses and workshops with practical hands-on-training at the Agency's beamlines at Elettra and the Ruđer Bošković Institute; Collaborating Centres; active CRPs; review missions and services aiming to advise accelerator and neutron source facilities in their strategic planning and enhanced utilization options (e.g. Integrated Research Reactor Utilization Reviews (IRRUR)).

Subprogramme 1.4.3 Nuclear Instrumentation

Objectives:

— *To support Member States in developing and strengthening their capabilities in the use of nuclear instrumentation for applied research and nuclear applications.*

— *To support Member States in environmental and nuclear site radioactivity mapping as well as other applications of mobile instrumentation.*

Outcomes	Performance Indicators
• Increased Member State capability in developing qualified professionals for establishing, optimizing and utilizing nuclear instrumentation for a wide variety of applications.	• Number of fellows and training workshop participants trained using experimental infrastructure. • Number of users accessing the Agency's nuclear instrumentation portal.
• Increased Member State use of Agency guidance, support, resources and services in the field of nuclear instrumentation and its applications.	• Number of publications, reports, and e-resources supported by the Agency and dedicated to nuclear instrumentation and its applications made available to Member States. • Number of Member States requesting specific Agency assistance with the implementation and use of nuclear instrumentation and its applications.

Projects	
Title	**Main Planned Outputs**
1.4.3.001 Nuclear instrumentation and capacity building	Training courses, scientific and technical publications, Technical Meetings and workshops on nuclear instrumentation, with an emphasis on applications in environmental monitoring; nuclear spectrometry and accelerator-based R&D; training courses and course materials.
1.4.3.002 Mobile instrumentation for radiation monitoring	Detectors and analysis software combined with a geoinformation system for in situ mapping of radiological contamination; unmanned aerial vehicle and backpack-based gamma detection systems for the survey of medium-sized areas; relevant methodologies developed and documented; training events; advisory and demonstration missions.

Subprogramme 1.4.4 Nuclear Fusion Research and Technology	
Objectives:	
— *To support Member States' R&D programmes on fusion plasma physics and technology, including capacity building.* — *To facilitate information exchange in Member States related to nuclear fusion plasma physics and technology development.*	
Outcomes	**Performance Indicators**
• Improved fusion research capacity and infrastructure in Member States.	• Number of research organizations/institutions involved in CRPs and joint experiments.
• Improved exchange of information and knowledge transfer between researchers and engineers in nuclear fusion plasma physics and technology development.	• Number of Member States and international organizations represented in the Fusion Energy Conference, DEMO Programme Workshops, Technical Meetings and Schools. • Number of users accessing the IAEA Fusion Portal.
Projects	
Title	**Main Planned Outputs**
1.4.4.001 Nuclear fusion research and technology	CRPs; Technical Meetings; training and other events dealing with collaboration on nuclear fusion, plasma physics, fusion technology, safety and security; 29th IAEA Fusion Energy Conference (to be held in 2023); DEMO Programme Workshops; joint activities with the ITER Organization; outreach; maintaining the IAEA Fusion Portal and databases.

Subprogramme 1.4.5 Support to the Abdus Salam International Centre for Theoretical Physics (ICTP)	
Objectives:	
— *To support Member States, in particular developing countries, in enhancing their scientific capability through training and information exchange and in advancing their capabilities in nuclear science and technology through cooperation with the ICTP.*	
Outcomes	**Performance Indicators**
• Enhanced knowledge of scientists through their participation in ICTP scientific programmes, including through the exchange of information among scientists.	• Number of ICTP scientific events organized. • Number of scientists participating in ICTP scientific events.
• Enhanced knowledge of scientists, including young scientists in particular from developing countries, in relevant Agency programmatic areas.	• Number of joint Agency–ICTP events conducted. • Number of scientists participating in joint Agency–ICTP events.
• Increased opportunity for scientists from developing countries to carry out doctoral research at an internationally renowned institute.	• Number of new Sandwich Training Educational Programme (STEP) fellowships funded by the Agency.
Projects	
Title	**Main Planned Outputs**
1.4.5.001 Support to ICTP	Training courses, 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)

Programme/Subprogramme/Project	2022 at 2022 Prices		2023 at 2022 Prices	
	Regular Budget	Unfunded	Regular Budget	Unfunded
1.0.0.001 Overall management, coordination and common activities	583 790	569 523	583 790	569 523
1.0.0.002 Outreach and stakeholder involvement	556 682	106 532	580 760	106 532
1.0.0.003 Partnerships and resource mobilization	581 624	12 643	581 434	12 643
1.S Corporate shared services	1 762 002	47 890	1 762 002	51 612
	3 484 097	**736 588**	**3 507 986**	**740 310**
1.1.1.001 Engineering support for operating nuclear power plants	1 392 062	419 686	1 392 062	419 686
1.1.1.002 Engineering support for expanding and new nuclear power projects	315 843	-	315 843	-
1.1.1 Strengthening Integrated Engineering Support for Nuclear Power Programmes	1 707 905	419 686	1 707 905	419 686
1.1.2.001 Support to management systems, leadership and stakeholder involvement	565 260	-	565 260	-
1.1.2.002 Human resource development for nuclear power programmes	506 846	10 666	506 846	10 666
1.1.2 Management and Human Resource Development for Nuclear Power Programmes	1 072 106	10 666	1 072 106	10 666
1.1.3.001 Nuclear power infrastructure development	850 765	1 911 355	824 534	1 846 452
1.1.3.002 Support to capacity building for nuclear power infrastructure	1 921 458	636 918	1 947 689	654 444
1.1.3 Integrated Support for Nuclear Power Programme Infrastructure Development	2 772 223	2 548 274	2 772 223	2 500 896
1.1.4.001 International project on innovative nuclear reactors and fuel cycles	1 217 556	1 256 676	1 217 557	1 148 945
1.1.4 International Project on Innovative Nuclear Reactors and Fuel Cycles	1 217 556	1 256 676	1 217 557	1 148 945
1.1.5.001 Technology development for advanced water cooled reactors	1 054 541	-	1 054 541	-
1.1.5.002 Technology development for small and medium sized or modular reactors	635 379	319 992	635 379	319 992
1.1.5.003 Technology development for fast reactors	617 893	106 664	617 892	106 664
1.1.5.004 Non-electric applications of nuclear power	451 304	10 666	451 304	10 666
1.1.5 Technology Development for Advanced Reactors and Non-electric Applications of Nuclear Power	2 759 117	437 322	2 759 117	437 322
1.1 Nuclear Power	**9 528 906**	**4 672 624**	**9 528 907**	**4 517 516**
1.2.1.001 Exploration, mining and processing	634 400	263 332	683 934	309 896
1.2.1.002 Resources data analytics	484 962	141 443	459 386	141 443
1.2.1.003 Low Enriched Uranium Bank	-	822 847	-	822 847
1.2.1 Uranium Resources and Processing	1 119 361	1 227 622	1 143 320	1 274 186
1.2.2.001 Nuclear power reactor fuel engineering and operation	684 359	82 265	655 792	82 265
1.2.2.002 Fuel cycle facilities operation and life management	404 470	44 973	424 000	10 648
1.2.2 Nuclear Power Reactor Fuel and Fuel Cycle Facilities	1 088 829	127 238	1 079 792	92 912
1.2.3.001 Spent fuel storage	769 052	34 325	747 432	58 003
1.2.3.002 Spent fuel recycling	235 280	72 471	240 482	72 471
1.2.3.003 Radioactive materials transportation	188 578	44 973	193 469	44 973
1.2.3 Management of Spent Fuel from Nuclear Power Reactor and Radioactive Material Transportation	1 192 911	151 769	1 181 383	175 447
1.2.4.001 Predisposal management	1 047 800	395 705	1 047 687	339 170
1.2.4.002 Waste disposal	1 055 072	374 321	1 054 208	304 050
1.2.4.003 Managing disused sealed radioactive sources (DSRSs)	629 694	821 733	630 673	771 946
1.2.4.004 Capacity building and knowledge sharing	249 728	10 885	249 728	50
1.2.4 Radioactive Waste Management	2 982 294	1 602 643	2 982 296	1 415 215
1.2.5.001 Decommissioning	945 014	804 583	941 405	733 676
1.2.5.002 Environmental remediation	694 233	60 265	695 647	141 945
1.2.5 Decommissioning and Environmental Remediation	1 639 246	864 848	1 637 052	875 621
1.2.6.001 Access to research reactors, capacity building and infrastructure development	433 443	186 502	448 712	186 502
1.2.6.002 Research reactor fuel cycle	531 641	486 019	522 868	482 245
1.2.6.003 Research reactor operation, performance and upgrade	552 665	-	547 322	-
1.2.6 Research Reactors	1 517 748	672 521	1 518 903	668 747
1.2 Nuclear Fuel Cycle and Waste Management	**9 540 390**	**4 646 641**	**9 542 745**	**4 502 129**

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

Summary of Programme Structure and Resources

(excluding Major Capital Investments)

	2022 at 2022 Prices		2023 at 2022 Prices	
Programme/Subprogramme/Project	Regular Budget	Unfunded	Regular Budget	Unfunded
1.3.1.001 Energy, electricity and nuclear power economics: status and trends	529 867	-	525 214	-
1.3.1.002 Models and capacity building for energy and nuclear power planning	1 468 841	-	1 468 841	-
1.3.1 Energy Modelling, Data and Capacity Building	1 998 708	-	1 994 056	-
1.3.2.001 Technoeconomic analysis	986 946	443 621	984 102	443 621
1.3.2.002 Topical issues related to sustainable energy development	694 278	325 879	784 741	473 814
1.3.2 Energy Economy Environment (3E) Analysis	1 681 224	769 501	1 768 843	917 435
1.3.3.001 Implementing knowledge management in nuclear organizations	696 201	22 547	696 201	22 547
1.3.3.002 Facilitating sustainable education in nuclear science and technology	989 315	431 106	989 315	248 390
1.3.3.003 Nuclear knowledge organizational systems and technology	732 183	207 870	732 183	207 870
1.3.3.004 IAEA Marie Skłodowska-Curie Fellowship Programme	-	3 624 277	-	3 624 277
1.3.3 Nuclear Knowledge Management (NKM)	2 417 699	4 285 801	2 417 699	4 103 085
1.3.4.001 IAEA library information resources and services	2 616 311	-	2 509 792	-
1.3.4.002 INIS collection and services	2 264 895	146 326	2 264 895	146 326
1.3.4 Nuclear Information	4 881 206	146 326	4 774 687	146 326
1.3 Capacity Building and Nuclear Knowledge for Sustainable Energy Development	**10 978 838**	**5 201 627**	**10 955 285**	**5 166 846**
1.4.1.001 Provision of data services	1 018 522	-	1 011 972	-
1.4.1.002 Nuclear data developments	1 350 881	12 940	1 336 301	12 940
1.4.1.003 Atomic and molecular data developments	791 472	14 052	812 596	14 052
1.4.1 Atomic and Nuclear Data	3 160 875	26 992	3 160 869	26 992
1.4.2.001 Accelerator and neutron source applications in multiple disciplines	992 105	260 183	989 666	274 078
1.4.2.002 Enhancing research with accelerators and neutrons	733 397	251 008	733 431	241 214
1.4.2 Research and Applications with Accelerators and Neutron Sources	1 725 502	511 191	1 723 097	515 292
1.4.3.001 Nuclear Instrumentation and capacity building	818 509	106 664	818 509	106 664
1.4.3.002 Mobile instrumentation for radiation monitoring	484 561	-	484 561	-
1.4.3 Nuclear Instrumentation	1 303 070	106 664	1 303 070	106 664
1.4.4.001 Nuclear fusion research and technology	893 189	215 639	893 154	215 639
1.4.4 Nuclear Fusion Research and Technology	893 189	215 639	893 154	215 639
1.4.5.001 Support to the ICTP	2 175 711	-	2 175 467	-
1.4.5 Support to the Abdus Salam International Centre for Theoretical Physics (ICTP)	2 175 711	-	2 175 467	-
1.4 Nuclear Science	**9 258 348**	**860 486**	**9 255 656**	**864 587**
Major Programme 1 - Nuclear Power, Fuel Cycle and Nuclear Science	**42 790 579**	**16 117 967**	**42 790 579**	**15 791 388**

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

Activities unfunded in the Regular Budget
(excluding Major Capital Investments)

Project	Tasks	2022 Unfunded	2023 Unfunded
1.0.0.001 Overall management, coordination and common activities	Programme coordination and facilitation of the development and upgrade of e-learning tools and applications	569 523	569 523
1.0.0.002 Outreach and stakeholder involvement	Support in the field of communication and stakeholder involvement activities	106 532	106 532
1.0.0.003 Partnerships and resource mobilization	Expert support in donors' database enhancement and upgrade	12 643	12 643
1.1.1.001 Engineering support for operating nuclear power plants	Expert support of publications, databases and eLearning	419 686	419 686
1.1.2.002 Human resource development for nuclear power programmes	Expert support in the area of HRD, workforce planning, training and qualification, behavioural competencies, leadership and organizational culture for operating nuclear power plants and new nuclear power projects	10 666	10 666
1.1.3.001 Nuclear power infrastructure development	Expert support in INIR services development and implementation	1 911 355	1 846 452
1.1.3.002 Support to capacity building for nuclear power infrastructure	Support implementation of capacity building in Member States	636 918	654 444
1.1.4.001 International project on innovative nuclear reactors and fuel cycles	Expert support in transition to sustainable nuclear energy systems	1 256 676	1 148 945
1.1.5.002 Technology development for small and medium sized or modular reactors	Expert support in SMR technology development and deployment	319 992	319 992
1.1.5.003 Technology development for fast reactors	Expert support in technology development and deployment of fast neutron systems and cross-cutting areas between nuclear fission and nuclear fusion for energy production	106 664	106 664
1.1.5.004 Non-electric applications of nuclear power	Expert support with demonstration of nuclear cogeneration, and assessments on nuclear cogeneration for seawater desalination, hydrogen production, district heating, and other industrial applications	10 666	10 666
1.2.1.001 Exploration, mining and processing	Technical information and good practices on Uranium and Thorium exploration, mining and processing	263 332	309 896
1.2.1.002 Resources data analytics	Uranium and thorium resources information	141 443	141 443
1.2.1.003 Low Enriched Uranium Bank	Project team costs	822 847	822 847
1.2.2.001 Nuclear power reactor fuel engineering and operation	Research and development and operation of fuels for current and new generation reactors	82 265	82 265
1.2.2.002 Fuel cycle facilities operation and life management	Activities related to the application of IAEA safety standards on the operation and life management of nuclear fuel cycle facilities	44 973	10 648
1.2.3.001 Spent fuel storage	Activities related to spent fuel storage techniques and transport	34 325	58 003
1.2.3.002 Spent fuel recycling	Activities related to spent fuel recycling, including recycling technologies and fuel cycles for SMRs and HTRs	72 471	72 471
1.2.3.003 Radioactive materials transportation	General management related to radioactive materials transportation	44 973	44 973
1.2.4.001 Predisposal management	Expert support of publications, wiki articles and web based information	395 705	339 170

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

Activities unfunded in the Regular Budget
(excluding Major Capital Investments)

Project	Tasks	2022 Unfunded	2023 Unfunded
1.2.4.002 Waste disposal	Expert support of developing a framework for the effective implementation of a disposal system	374 321	304 050
1.2.4.003 Managing disused sealed radioactive sources (DSRSs)	Expert support in capacity building, development of training material and publications	821 733	771 946
1.2.4.004 Capacity building and knowledge sharing	Support in ensuring connectivity with Member States and with other International Organisations	10 885	50
1.2.5.001 Decommissioning	Facilitate implementation of projects of International Decommissioning Network	804 583	733 676
1.2.5.002 Environmental remediation	Projects of Environmental Remediation Network	60 265	141 945
1.2.6.001 Access to research reactors, capacity building and infrastructure development	Assistance to Member States embarking on new research reactors projects, including project planning and implementation, assessment and development of national nuclear infrastructure, national nuclear capacity building and HR development	186 502	186 502
1.2.6.002 Research reactor fuel cycle	Support to Member States on research reactor fuel cycle issues	486 019	482 245
1.3.2.001 Technoeconomic analysis	Expert support on topical energy, economics and environmental issues	443 621	443 621
1.3.2.002 Topical issues related to sustainable energy development	Topical issues related to sustainable energy development	325 879	473 814
1.3.3.001 Implementing knowledge management in nuclear organizations	Expert support to develop and maintain NKM methodology, activities and support	22 547	22 547
1.3.3.002 Facilitating sustainable education in nuclear science and technology	Expert support in maintaining and establishing educational networks	431 106	248 390
1.3.3.003 Nuclear knowledge organizational systems and technology	Assist and support Member States in the implementation of the Knowledge Organization Systems (KOS) and technology	207 870	207 870
1.3.3.004 IAEA Marie Skłodowska-Curie Fellowship Programme	Scholarships and activities under IAEA Marie Skłodowska-Curie fellowship programme	3 624 277	3 624 277
1.3.4.002 INIS collection and services	Expert support in INIS collection and services	146 326	146 326
1.4.1.002 Nuclear data developments	Updating of data libraries and network systems	12 940	12 940
1.4.1.003 Atomic and molecular data developments	Updating of databases and corresponding dissemination tools	14 052	14 052
1.4.2.001 Accelerator and neutron source applications in multiple disciplines	Capacity building in Member States and collaboration in the area of RR utilization	260 183	274 078
1.4.2.002 Enhancing research with accelerators and neutrons	Expert support in the area of research reactors	251 008	241 214
1.4.3.001 Nuclear instrumentation and capacity building	Expert support in the area of nuclear instrumentation	106 664	106 664
1.4.4.001 Nuclear fusion research and technology	Project management and administration for nuclear fusion research and technology	215 639	215 639
1.S Corporate shared services	Corporate shared services	47 890	51 612
Grand Total		**16 117 967**	**15 791 388**

Major Programme 2
Nuclear Techniques for Development and Environmental Protection

Introduction

Major Programme 2 aims at fostering the development of innovative nuclear science and technology that can contribute to the SDGs and at providing technical support to transfer validated technologies to Member States. The Major Programme supports the peaceful uses of nuclear science and applications, providing Member States with science-based advice, educational materials, standards, guidance on best practices and reference materials, and technical documents. Major Programme 2 encompasses activities in five thematic areas: food and agriculture, human health, water resources, the marine environment, and radiochemistry and radiation technology. The assistance rendered to Member States in their efforts to address the COVID-19 pandemic has highlighted the valuable contribution of nuclear science and technology. The application of nuclear science and technology is growing in areas such as health care, environmental protection, materials, industry, food and agriculture and water resources, as well as in addressing global challenges, such as climate change, zoonotic diseases and plastics pollution.

Major Programme 2 is served by 12 laboratories that are unique in the United Nations system; the Agency is the only international organization with fit-for-purpose laboratories that assist its Member States in enhancing their capacity to use nuclear applications to reach their development goals, including SDG targets. The laboratories need to remain capable of meeting the increasing and evolving needs of Member States. After the success of the Renovation of the Nuclear Applications Laboratories (ReNuAL/ReNuAL+) projects, ReNuAL 2 phase of the project has been launched to complete the modernization of the Seibersdorf laboratories. Enhancing quality assurance and maximizing the use of the new facilities will help the Agency provide enhanced services to Member States. The Agency's laboratories in Vienna, Seibersdorf and Monaco remain an essential vehicle for programme delivery. The Agency's research and development (R&D) activities and its vast number of coordinated research projects (CRPs) contribute to a diverse range of issues. While the Major Programme assists Member States in building their capacity, knowledge and expertise, it also contributes to increasing R&D capacity in Member States through its CRPs.

The Agency's Collaborating Centre scheme remains a valuable arrangement for working jointly with Member States' institutions. Efforts will be made to make more efficient use of the scheme for more cost-effective implementation of the Major Programme through arrangements with Collaborating Centres.

Partnerships remain an important way to strengthen programmatic activities and engage with Member States. Major Programme 2 will continue to enhance key partnerships with United Nations system organizations such as the Food and Agriculture Organization of the United Nations (FAO), the World Health Organization (WHO), the United Nations Environment Programme (UNEP) and the World Organisation for Animal Health. The Major Programme hosts several internationally recognized databases and networks of Member States' scientific and research institutions, such as the network of Analytical Laboratories for the Measurement of Environmental Radioactivity (ALMERA) and the Veterinary Diagnostic Laboratory Network.

Education and training will continue to be fundamental to this Major Programme. To reach a wider audience and achieve greater cost savings, the development of e-learning tools and online education platforms such as webinars will continue to be emphasized. To increase public awareness of the work and contributions of this Major Programme, efforts initiated in previous budget cycles aimed at developing specific communication strategies will be carried on.

Objectives:
— *To support Member States to strengthen their science and application capabilities through the integration of nuclear and isotopic techniques.*

Outcomes	Performance Indicators
• Increased Member State use of nuclear and isotopic techniques in the areas of food and agriculture, human health, water resources management, management of marine and terrestrial environments, and industrial development.	• Number of Member States with active R&D activities in non-power nuclear applications. • Number of Member States using non-power nuclear applications developed in collaboration with the Agency.
Projects	
Title	**Main Planned Outputs**
2.0.0.001 Overall management, coordination and common activities	Annual Report; Nuclear Technology Review; Mid-Term Progress Report; Programme Performance Report; reports to the General Conference; briefings, meetings of the Standing Advisory Group on Nuclear Applications (SAGNA); meetings with Member States; Ministerial Conference on Nuclear Science and Technology for Development (2023).
2.0.0.002 Management of the coordinated research activities	Completed coordinated research projects; completed research, technical and doctoral contracts and research agreements; Technical Meetings (Research Coordination Meetings); publications; dissemination of databases and techniques; Collaborating Centre agreements.
2.0.0.003 Outreach and partnerships coordination	Completed documents related to nuclear applications partnerships and networks, such as practical arrangements, memoranda of understanding, acceptance of extrabudgetary contributions; reports for management and Member States on nuclear applications partnerships.

Programme 2.1 Food and Agriculture

Major global trends that continue to influence the sustainability of agricultural development and global food security include: population growth that is expected to increase the demand for agricultural products; income growth in low and middle income countries, which is anticipated to shift demand from cereals towards fruits, vegetables, meat and dairy products; upsurges in transboundary plant/animal pests and diseases, which hamper crop and livestock production; the outbreak of zoonotic diseases that impact human health, economic productivity and trade; and the impact of climate change, which intensifies natural disasters and exacerbates challenges in the food and agriculture sector; as well as the increasing demand to improve food safety and quality.

This Programme deploys applied and innovative R&D activities using nuclear technology to devise concrete and adapted solutions to support Member States in: climate-smart agriculture through laboratory and field R&D activities, as well as technology transfer to field applications; monitoring and responding to threats and crises in agriculture to foster resilience of food and agriculture production and related livelihoods; and promoting resource-saving agriculture to improve the efficiency of agriculture and food systems.

Lessons learned from reviews, assessments and evaluations: To ensure greater impact, it is essential to identify partners/networks in the field to disseminate the proven technology packages, particularly for the benefit of smallholder farmers. Likewise, to achieve enhanced socio-economic impact, the Agency's assistance to Member States should not be limited to technology transfer, but also extended to help overcome management and operational deficiencies in the implementation process and capabilities, including promoting gender mainstreaming in agriculture production.

Specific criteria for prioritization:

1. Achieve sustainable food and agriculture production, support implementing actions to achieve SDGs, and address emerging threats to agriculture and food systems, particularly in response to the impacts of climate change.
2. Address challenges posed by global trends impacting agricultural development and food security, with a focus on emerging issues and challenges requiring further research, development and technology transfer.
3. Develop scientific and technical knowledge addressing current and future challenges for the agriculture and food sector, using nuclear and related techniques.

Programmatic Changes and Trends

Subprogramme 2.1.1 Sustainable Land and Water Management reflects the programmatic shift to address Member State concerns over the increasing degradation of soil and water resources for sustainable food production, particularly in response to the impacts of climate change and its variability. The focus will be on developing tools and technologies combining nuclear technology with advanced, modern digital technology to combat the impact of climate change and improve on-farm and area-wide land and water management practices. Increasing emphasis will also be placed on the development and assessment of climate-smart agricultural practices for food production and improved soil and water quantity and quality in both cropping and integrated cropping–livestock farming systems. The Subprogramme will also enhance the assistance provided to Member States for preparedness and response to nuclear and radiological emergencies, including remediation of radioactive contamination, affecting food and agriculture.

Subprogramme 2.1.2 Sustainable Intensification of Livestock Production Systems reflects the continual programmatic shift to 'fit-for-purpose' nuclear and derived immunological and molecular based technologies to: optimize the use of available animal feed resources whilst mitigating climate change; improve the production traits of locally available livestock breeds (i.e. greater yields, better quality milk and meat); develop, evaluate, validate and transfer mining, surveillance and diagnostic techniques for transboundary animal and zoonotic diseases enabling Member States to respond to the risks posed by such events earlier and with greater effectiveness. The use of gamma irradiated diagnostic reagents and components, and inactivated or killed disease pathogens as vaccine components, as well as the use of stable isotopes to trace and monitor pathways of disease carriers in a non-invasive way, and the development and use of 'fit-for-purpose' technologies for the timely detection and diagnosis of animal and zoonotic diseases will be enhanced to form the basis of the activities of this Subprogramme. A major focus will be on the mining, detection and surveillance of zoonotic pathogens at the environment–wildlife–livestock interface to ensure early diagnosis of zoonotic diseases to protect human lives.

Subprogramme 2.1.3 Improvement of Food Safety and Food Control Systems provides assistance to Member States in implementing food control systems to ensure the safety and quality of the food supply, safeguarding consumer health and helping to facilitate international trade through strengthening of analytical testing capabilities, and support for food processing by radionuclide and machine-generated ionizing radiation. Recent events, such as the COVID-19 pandemic, have highlighted vulnerabilities in food control systems, including increased food fraud and changing food contamination patterns resulting from climate change and the effects of microplastics and other contaminants. There is, therefore, a trend towards the development and transfer to Member States of cost-effective, rapid testing methods to ensure that contamination events can be rapidly investigated, and that food safety can be assured as far as possible during periods of disruption. Nuclear technologies such as food irradiation can be used to reduce food safety risks or to mitigate food hazards.

Subprogramme 2.1.4 Sustainable Control of Major Insect Pests responds to increased demands from Member States for control tactics that are more effective and environmentally friendly for the sustainable management of key insect pests of crops, livestock and human health. Emphasis will be placed on the development of more cost effective mass-rearing techniques, in depth studies on the biological effects of radiation on the male insects to develop more effective radiation procedures, protocols to enhance the mating competitiveness of the sterile males through the use of semiochemicals and endosymbionts and through the control of insect pathogens, and new innovative release systems that can be used on drones. Climate change and globalization increased the introduction and establishment of invasive plant pests and human disease vectors, requiring the development of rapid response methods to mitigate the risk posed by these invasive species.

Subprogramme 2.1.5 Crop Improvement for Intensification of Agricultural Production Systems develops and adapts emerging technologies to sustain crop performance for food security under the increasing challenges of climate change and agro-biodiversity loss. Greater importance is being placed on improved crop nutritional value to tackle persistent malnutrition in women and children, and protection against crop devastation from increasing transboundary plant diseases. The Subprogramme will use new technologies in radiation-induced mutagenesis, cell/tissue culture, genomics and speed breeding for faster crop improvement under pressures of drought, heat, salinity, transboundary diseases, pests and others. It will also use emerging technologies for chimera-free regeneration and induced mutagenesis for the improvement of root and tuber crops, under-utilized crops and horticultural tree crops. Induced mutagenesis combined with functional genomics will be used to achieve faster genetic gains to improve food and nutrition security and farmer income.

Objectives, Outcomes and Performance Indicators by Programme

Programme 2.1 Food and Agriculture

Objectives:

— *To increase the sustainability and resilience of food and agriculture production and related livelihoods in Member States through climate-smart agriculture approaches, including meeting challenges from animal and zoonotic diseases, plant pests, food safety risks, climate change, biothreats, and nuclear or radiological emergencies.*

Outcomes	Performance Indicators
• Increased capacities for agricultural production and enhanced adaptation to climate change for more resilience of agricultural system in Member States.	• Number of Member States applying Agency recommended techniques, guidelines and products in their farming innovation and extension programmes.
• Improved capacity of relevant national agricultural organizations in using nuclear and related techniques for efficient and sustainable agricultural production.	• Number of national agricultural research institutes and other relevant national organizations using Agency recommended techniques, guidelines and products in their agricultural research and innovation.

Subprogramme 2.1.1 Sustainable Land and Water Management

Objectives:

— *To develop tools and technology packages for the application of nuclear techniques in combination with digital technology for Member States to improve sustainable land and water management practices.*

— *To build Member State capacities in the use of isotopic, nuclear and related techniques to improve land and water management practices, adapt to the impact of climate change on land and water resources for sustainable food production, and respond to nuclear and extreme weather emergencies affecting food and agriculture.*

Outcomes	Performance Indicators
• Increased Member State ability to apply nuclear techniques to mitigate or adapt to the impacts of climate change on land use, land degradation, soil erosion and greenhouse gas emissions through climate-smart agricultural practices through the use of nuclear technology developed by the Agency.	• Number of requests by Member States to use isotopic, nuclear and related techniques, developed in collaboration with the Agency, in innovative land and water management packages.
• Increased Member State use of Agency services in efforts to monitor and assess the impacts of nuclear or radiological emergencies and in remediation efforts for food and agriculture.	• Number of guidelines and tools for remediation developed in collaboration with the Agency and used in Member States.
• Increased Member State capacity in the use of isotopic, nuclear and related techniques to measure and monitor the impact of on-farm and area-wide land and water management practices on water quantity and quality, climate change and extreme weather events on soil and water resources for sustainable food production, and nuclear or radiological emergencies affecting food and agriculture.	• Number of Member States using isotopic, nuclear and related techniques to assess the impact of on-farm and area-wide land and water management practices, extreme weather events on soil and water resource 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	Publications; protocols, guidelines and standard operating procedures; reports; training courses and workshops.
2.1.1.002 Water management for resource saving agriculture	Publications; protocols, guidelines and standard operating procedures; reports; training courses and workshops.
2.1.1.003 Assessment of food and soil contamination during radiological emergencies	Protocols and guidelines; data collection, management and visualization tools for crisis management; training.

Subprogramme 2.1.2 Sustainable Intensification of Livestock Production Systems

Objectives:

- *To support Member States in enhancing livestock nutrition, reproduction and breeding systems to sustainably improve farmers' livelihoods by developing, transferring and applying nuclear and related techniques, while promoting climate-smart agriculture.*
- *To support Member States in the control of animal and zoonotic disease risks, including those with a biothreat potential, to improve animal production, enhance livelihoods and protect human lives, by developing, transferring and applying atomic, nuclear and derived technologies.*

Outcomes	Performance Indicators
• Increased Member State use of services and technologies developed by the Agency in animal nutrition, reproduction and breeding strategies and practices to improve productivity in medium and low input production systems.	• Number of Member States adopting Agency recommended feeding and nutrition strategies using locally available feed resources. • Number of Member States implementing livestock breeding services and animal genetic characterization or breeding strategies based on Agency recommendations to improve reproduction outcomes.
• Increased Member State use of Agency technologies and guidelines on animal health systems to diagnose and control transboundary animal diseases.	• Number of Member States implementing animal disease diagnostic and control technologies to ensure timely actions (vaccination or disease elimination) using Agency guidelines.
• Increased Member State use of technologies and procedures developed by the Agency for mining, early detection, rapid diagnosis and control of zoonotic diseases, including those with a biothreat potential.	• Number of Member States implementing zoonotic disease diagnostic and control technologies to ensure timely actions using Agency guidelines.

Projects

Title	Main Planned Outputs
2.1.2.001 Improving animal production and breeding	Publications; guidelines and standard operating procedures; reports; training courses and workshops; database for recording production data.
2.1.2.002 Decreasing transboundary animal disease threats	Development and transfer of nuclear and derived technologies for the early and rapid diagnosis and control of transboundary animal diseases to enhance livestock productivity and promote biosecurity.
2.1.2.003 Early detection, rapid diagnosis and control of zoonotic diseases	Development, evaluation, validation and transfer of nuclear and derived technologies for the mining, early and rapid diagnosis, surveillance and control of zoonotic diseases at the wildlife–livestock—environment level and human interface to enhance livestock productivity and to promote biosecurity.

Subprogramme 2.1.3 Improvement of Food Safety and Food Control Systems

Objectives:

- *To enhance food safety and food quality control systems in Member States through the effective application of nuclear and related techniques, to contribute to food security and public health, and to enable sustainable trade.*
- *To improve the capability of Member States to rapidly and effectively respond to food safety incidents and emergencies.*

Outcomes	Performance Indicators
• Increased Member State application of food irradiation, based on established and novel uses for food safety, quality, sanitary and phytosanitary purposes.	• Number of Member States requesting support and assistance on nuclear and related techniques for food safety, sanitary and phytosanitary purposes. • Number of food treatment facilities using food irradiation for food safety, sanitary and phytosanitary purposes.

Outcomes	Performance Indicators
• Increased Member State use of food testing technology developed or adapted by the Agency to support food safety and quality control systems.	• Number of laboratories in Member States using methodology for food safety and quality developed or transferred by the Agency. • Number of new analytical methods for food safety and integrity transferred to, validated by and implemented in Member States.
• Increased Member State capability to use rapid, cost-effective and reliable analytical techniques for a fast response to food contamination incidents or emergencies affecting food safety.	• Number of laboratories in Member States participating in food safety or emergency response laboratory networks. • Number of new rapid screening methods for food safety and integrity transferred to and validated in Agency supported laboratory networks.

Projects

Title	Main Planned Outputs
2.1.3.001 Food irradiation applications using novel radiation technologies	International standards, guidelines, protocols and approaches for electron beam, X-ray and relevant radionuclide source technology; new electrical radiation beam technologies.
2.1.3.002 Traceability for food safety and quality to enhance international trade	Validated analytical methods for food contaminant and residue control and food authenticity/origin determination used in Member State laboratories to improve food safety and quality, and to support trade; trained laboratory staff; strengthened/expanded laboratory networks; data to enable risk management.
2.1.3.003 Cost-effective nuclear techniques for responding to food contamination during emergencies	Rapid, field-based or transportable analytical techniques for chemical contamination/adulteration detection or geographical origin tracing; food safety emergency response networks.

Subprogramme 2.1.4 Sustainable Control of Major Insect Pests

Objectives:

— *To increase the capacity of Member States in the area-wide suppression, prevention, containment or eradication of key insect pests that threaten crops, livestock and humans, by developing and integrating the sterile insect technique with other suppression methods.*

Outcomes	Performance Indicators
• Increased Member State use of improved sterile insect technique (SIT) and related technologies, and decision support systems to create efficient and cost-effective insect pest management strategies.	• Number of Member States receiving training, support and improved technologies, technical and economic feasibility and decision support studies, guidelines, e-learning courses, manuals and standards.

Projects

Title	Main Planned Outputs
2.1.4.001 SIT and related technologies to manage major insect plant pests	Improved mass-rearing methods and strains; feasibility assessments and implementation of area-wide integrated pest management 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 insects; capacity building; provision of materials, feasibility assessments and facility designs; strategy and policy advice; harmonized approaches among key international partners.

Title	Main Planned Outputs
2.1.4.003 Development of the SIT for the control of disease transmitting mosquitoes	Methodologies to enable upscaling of the rearing and sterilization of *Aedes albopictus*, *Ae. aegypti*, and *Anopheles arabiensis* to a large operational scale; fail-proof genetic sexing systems and strains and engineered equipment to separate the morphological markers; transfer of new technologies to Member States; male mosquito mating behaviour assessments in relation to mass-rearing, radiation and handling processes; new innovative release systems using drones; guidelines, manuals and designs of more cost-effective rearing facilities 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 related technologies for crop improvement.*

— *To support Member States in addressing major constraints of crop production through mutation breeding techniques.*

Outcomes	Performance Indicators
• Enhanced Member State capacity to use nuclear and related technologies, and associated biotechnologies, for increasing crop genetic diversity and developing new and improved crop varieties.	• Number of Member States supported in the use of nuclear and related technologies in crop improvement. • Number of improved crop mutant varieties and mutant lines adaptable to climate change (tolerant to abiotic and biotic stresses, improved yield and quality) released by Member States.
• Increased use of mutation breeding and related in vitro and genomic technologies for the faster development of improved food, feed and cash crops with better yield, quality and adaptation to climate change.	• Number of Member States applying developed technology packages. • Number of technology packages developed or adapted for transfer to Member States.

Projects

Title	Main Planned Outputs
2.1.5.001 Mutation induction for better adaptation to climate change	Protocols, guidelines, database, training, improved crop varieties and mutant lines with broadened adaptation to climate change.
2.1.5.002 Integrated techniques for mutation breeding and biodiversity	Protocols, guidelines, database, training, enhanced crop biodiversity (advanced mutant lines) as breeding resources.

Programme 2.2 Human Health

Nuclear and derived techniques can be used in the management of non-communicable diseases (NCDs), such as cardiovascular diseases, cancer, neurodegenerative disorders and diabetes; communicable or infectious diseases; as well as of undernutrition, obesity and diet related NCDs. These techniques can also help Member States in achieving SDGs including SDG 3 "Good Health and Well-Being". This Programme supports Member States in establishing and ensuring the safe and effective use of medical imaging, radiation therapy and stable isotopes to combat malnutrition in all its forms, within a quality management framework. Professional development through a life-long learning process is vital in order to provide high standards of quality in health care. Information and communication technologies have revolutionized the educational processes, such as through the development and use of web-based educational resources. Capacity building will be enhanced by strengthening the education of professionals to improve clinical practice and nutritional programmes.

The Programme supports Member States in their review and assessment of new technologies; implementation and strengthening of medical imaging, radiation therapy and related treatment modalities; enhancing safety and quality in the use of nuclear techniques through guidance documents, codes of practice, audits, calibrations and quality assurance services; and the establishment of techniques and guidance on their implementation. Partnerships with the WHO, other United Nations organizations, and international agencies and professional bodies will lead to

enhanced synergies and harmonized good 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, assessments and evaluations: Investment in new technology is not always accompanied by adequate investment in human resource development in Member States. Additional efforts in Member States should be deployed to properly evaluate the introduction of new technology considering its impact on health systems, equitable access and sustainability, as well as to strengthen the central role for capacity building, especially during the transition to new technology.

The implementation of Agency guidelines to enhance quality management in Member States is challenging due to limited resources that are dedicated to quality improvement.

It is essential that the Agency increases efforts to raise awareness on the need to promote quality management for radiotherapy, radiology and nuclear medicine departments, as well as for the use of nuclear techniques in nutrition assessments in Member States.

The use of information and communication technology for holding meetings and disseminating information has increased significantly and further refinements in such technologies will allow their expanded use in the future, thus increasing the outreach of the different initiatives in a cost-effective manner.

The assessment of the use and impact of activities in human health and nutrition should be strengthened through user surveys and other means. This is important to better understand how Agency activities in these areas contribute to improved clinical practice and improved nutrition programming.

Specific criteria for prioritization:

1. Activities having the greatest impact on effectiveness of diagnosis and treatment of patients, while ensuring safety of patients, staff and public.
2. Activities supporting the implementation and sustainability of appropriate technologies to tackle Member States' specific needs.
3. Activities supporting the safe transitioning to new and proven modalities, including those relating to capacity building of professionals.
4. Activities having the greatest impact on improving the effectiveness of nutrition programmes to combat malnutrition in all its forms.
5. Emerging nuclear technologies applicable to human health and nutrition 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 supporting the use of relevant nuclear techniques in addressing the double burden of malnutrition. New areas include research that increases the understanding of micronutrient and protein uptake and utilization in different contexts such as environmental enteric dysfunction and climate change, and techniques that provide objective measures of dietary intake. This will generate important data to inform programmes improving child growth, nutrition and health. The Subprogramme will further expand the clinical applications of nuclear techniques in nutrition. Partnerships with nutrition societies, WHO, FAO, the United Nations Industrial Development Organization and other relevant Subprogrammes will focus on early life nutrition, diet quality, cancer and linkages with agriculture and marine food quality. Expansion of collaboration and extrabudgetary funding sources will be important to increase the impact of research projects. Development of new delivery mechanisms of educational activities, support for calculation tools, validation of apps, as well as strengthening quality assurance of measurements will also be emphasized.

Subprogramme 2.2.2 Nuclear Medicine and Diagnostic Imaging will focus on the use of datasets and databases, including epidemiology, demographics and available infrastructure to advise Member States on investment needs in nuclear medicine and radiology to tackle the burden of NCDs and communicable diseases. Special emphasis will be placed on the use of emerging technologies, such as machine learning, artificial intelligence and radiomics, for expanding the appropriate use of nuclear medicine and radiology, diagnostic and therapeutic techniques, with a personalized medicine approach. The Subprogramme will contribute to the attainment of SDG 3 and will place special attention on supporting vulnerable populations. Specific activities will be implemented to tackle prevalent pathologies in women, e.g. osteoporosis, gynaecological cancers and cardiovascular diseases. Based on the lessons learned during previous years on the use of communication technologies for education and training, the Subprogramme will continue using different virtual tools, including web based learning, virtual meetings and symposiums, to increase outreach. It will also continue supporting the maintenance of professional certification

by granting Continuing Medical Education Credits for face-to-face, blended and virtual education and training activities.

Subprogramme 2.2.3 Radiation Oncology and Cancer Treatment will optimize the use of up-to-date tools, such as e-learning strategies, for training in low resource environments and consistent with the overall objectives of the Human Health Programme. The scope of the Subprogramme will extend to new and innovative techniques and the assessment of their feasibility for a successful uptake in Member States. To achieve this, the Subprogramme will seek to broaden the availability of web based educational resources.

Subprogramme 2.2.4 Dosimetry and Medical Physics for Imaging and Therapy will focus on developing new dosimetry and quality assurance guidance in medical physics and radiation metrology, updating existing guidelines and codes of practice, and maintaining and enhancing databases. Support for the recognition and education of medical physicists and radiation metrologists in Member States will continue in cooperation with professional societies and international organizations. The expansion and refurbishment of the Dosimetry Laboratory services will facilitate opportunities for education and the development of guidelines. Support will be provided to coordinated research projects aimed at developing tools for implementing advanced techniques in imaging and therapy. The assessment of new technologies will be conducted in consultation with scientific and professional experts. Guidelines for a safe and effective implementation of emerging digital platforms and technologies in radiation medicine will be developed.

Objectives, Outcomes and Performance Indicators by Programme

Programme 2.2 Human Health	
Objectives:	
— *To support Member States in enhancing their capability to address needs relating to nutrition and 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**
• Increased use of nuclear techniques by institutions in Member States supported by the Agency to develop more effective programmes in health.	• Number of institutions in Member States engaged in Agency studies and activities using nuclear and related techniques in health.
• Enhanced competencies of health care professionals working in radiation medicine in Member States using the Agency's online platform.	• Number of Member States participating in Agency activities in the use of nuclear and derived or isotopic techniques in human health. • Number of professionals trained through human health related activities.

Subprogramme 2.2.1 Nutrition for Improved Human Health	
Objectives:	
— *To support Member States in enhancing their capability to improve nutrition for better human health.*	
Outcomes	**Performance Indicators**
• Increased Member State use of nuclear techniques to conduct studies and develop informed nutrition policies and programmes.	• Number of institutions in Member States engaging in Agency studies and activities using nuclear and related techniques in nutrition including research, publications and quality assurance. • Number of Member States using or taking part in Agency led activities using nuclear and related techniques in nutrition.
Projects	
Title	**Main Planned Outputs**
2.2.1.001 Health effects of nutrition and the environment	Research studies and improved data quality; guidelines, web-based education tools and resources, publications, and standard quality control procedures made available to Member States; new and stronger partnerships.

Subprogramme 2.2.2 Nuclear Medicine and Diagnostic Imaging

Objectives:

— *Improve the management of patients with non-communicable and communicable diseases in Member States through the appropriate and evidence-based use of nuclear medicine and diagnostic imaging techniques, including diagnostic and therapeutic applications and the implementation of adequate and sustainable nuclear medicine and diagnostic imaging resources (human and infrastructure).*

Outcomes	Performance Indicators
• Improved Member State capabilities for the management of patients with health conditions including knowledge, skills and competencies, processes and infrastructure through the use of Agency resources.	• Number of Member States using relevant Agency resources related to the clinical practice of nuclear medicine and radiology including clinical research, quality management programmes, clinical audits, data analysis and predictive models, guidelines, recommendations and databases. • Number of institutions participating in Agency led activities in nuclear medicine and radiology.
• Increased number of medical professionals in Member States taking advantage of competency-based activities focused on elevating nuclear medicine and radiology clinical practices and the appropriate use of medical imaging and therapeutic interventions.	• Number of professionals accessing educational materials or engaging in education and training activities for continuous professional development in the fields of nuclear medicine and radiology.

Projects

Title	Main Planned Outputs
2.2.2.001 Nuclear medicine and radiology techniques in health conditions	Coordinated research activities improved and harmonized; peer review and Agency publications, guidance, guidelines and meeting reports made available; International Conference on Integrated Medical Imaging in Cardiovascular Diseases (IMIC-2022) and virtual events; face-to-face and virtual conferences implemented and quality management audits in nuclear medicine (QUANUM) and radiology (QUAADRIL) implemented in Member States.
2.2.2.002 Clinical data management and education in nuclear techniques in health	Nuclear medicine and radiology content of Human Health Campus continuously updated; Agency nuclear medicine and medical imaging databases (NUMDAB and IMAGINE) updated; interactive e-learning and other educational materials developed; online seminars broadcasted and recorded; major international congresses organized by Agency-partners broadcasted; leadership and other soft skills promoted; nuclear medicine and radiology training curriculums unified and harmonized.
2.2.2.003 Medical imaging and radiomics	Availability of data sets, databases and data analysis models to assess the educational, staffing and diagnostic imaging equipment needs in Member States; big data for the analysis of clinical futures of communicable and non-communicable diseases collected.
2.2.2.004 Communicable disease management	Establishment of a molecular biology laboratory to support health systems in Member States.

Subprogramme 2.2.3 Radiation Oncology and Cancer Treatment

Objectives:

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

Outcomes	Performance Indicators
• Strengthened Member State use of Agency guidelines to optimize the management of cancer cases through the implementation of evidence-based approaches.	• Number of Member States trained through Agency led activities in radiotherapy and radiobiology. • Number of institutions in Member States using or taking part in Agency research, publications and quality management activities in radiotherapy and radiation biology.
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; provision of expertise for clinical trials using novel strategies, including clinical and accidental biodosimetry; research in tissue engineering, ion beam therapy and stem cell therapy.

Subprogramme 2.2.4 Dosimetry and Medical Physics for Imaging and Therapy	
Objectives:	
— *To enhance Member State capabilities for radiotherapy and cancer treatment and other applications of radiation in human health, and for the effective, efficient and safe utilization of current and future advanced radiotherapy technologies.*	
Outcomes	**Performance Indicators**
• Increased use of Agency guidelines and dosimetry services to enhance quality assurance and dosimetry in national calibration laboratories and hospitals.	• Number of Member States using Agency Dosimetry Laboratory services (calibrations, comparisons and dosimetry audits). • Number of professionals, partners or organizations that benefit from collaboration and training activities at the Dosimetry Laboratory.
Projects	
Title	**Main Planned Outputs**
2.2.4.001 Calibration and auditing services	Results of dosimetry postal audit services; results of calibrations 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 on dosimetry guidance; dosimetry codes of practice; training materials on radiation dosimetry; database development.
2.2.4.003 Clinical medical radiation physics	Publications on quality assurance guidelines for the physical, technical and safety aspects of clinical medical physics; educational materials for medical physicists working in medical radiation imaging and treatment; database maintenance and development.

Programme 2.3 Water Resources

Water security is a key factor for human well-being and ecosystem health, as recognized in SDG 6 “Clean Water and Sanitation”. Groundwater aquifer resources play a crucial role in reliable food production and clean water supplies. Estimates of available freshwater, its replenishment and pathways in the hydrological cycle, and the factors controlling access and water quality are not always clearly understood. Overexploitation of fossil or non-renewable aquifer resources often leads to severe declining water levels and water scarcity. Increasing demand for food and energy requires that governments appropriately allocate water across different economic sectors. Additional uncertainties are related to the role of water in global hydroclimate changes (SDG 13).

Comprehensive ground and surface water resource assessment and management require multidisciplinary approaches that must be supported by sound scientific hydrological data and environmental information. The general lack of national ground and surface water resource assessments restrict many Member States' ability to effectively manage the demands for water supply and achieve water security. This Programme addresses SDG 6 targets by deploying isotope hydrology techniques to improve national hydrological understanding. The programme prioritizes capacity building and self-reliance in Member States through the application of isotopic methods which help inform the assessment and management of water resources.

Lessons learned from reviews, assessments and evaluations: A recurring lesson learned is the critical importance of proper hydrological study design and water resource assessment, clear priorities set by Member States through the identification of specific knowledge gaps in national hydrological information, and the establishment of appropriate institutional and legal frameworks for collaboration among national and international institutes. The adoption of a revised IAEA Water Availability Enhancement 2.0 (IWAVE 2.0) approach strongly emphasizes the importance of long term commitment and involvement of all key stakeholders with a mandate for water resources, as well as the need to involve relevant local water authorities. Additionally, informed assessment of the need and appropriate role of nuclear and isotopic techniques in addressing specific water problems ensures that proposed work plans have a comparative advantage compared to conventional hydrological investigations. There is a rapid expansion in the application of stable isotopes, radioisotopes and noble gases in hydrology in Member States, leading to the need for self-reliance in providing analytical results. The Agency continues to support hundreds of Member State laboratories in improving the reliability and capabilities of analytical outcomes through the use of biennial proficiency testing for stable isotopes and radioisotopes in hydrology. Projects related to water quality and pollution issues (e.g. nitrogen pollution) and aquifer vulnerability mapping are increasingly identified by Member States as being vital to ensure sustainable water supply and quality.

Specific criteria for prioritization:

1. Support Member States in their identified priority areas for isotope hydrology efforts relating to water resource security.
2. Identify and evaluate institutional and legal framework needs, as well as comprehensive hydrological information at national and regional levels, to enable sustainability of the impact of isotope hydrology on water resource security.
3. Ensure isotope and nuclear techniques have a comparative advantage compared to traditional non-nuclear alternatives for the proposed application.

Programmatic Changes and Trends

Subprogramme 2.3.1 Isotope Data Networks for Hydrology and Climate Studies compiles and provides public access to the Agency's long-standing global isotope databases — the Global Network of Isotopes in Precipitation (GNIP) and the Global Network of Isotopes in Rivers (GNIR) — for hydrological and climatological studies. Member State participation has significantly increased over the past decade. Demand for these global data has risen as they are increasingly used to study climate change and environmental impacts. New efforts are being established to mainstream machine learning and artificial intelligence tools to evaluate the Agency's global isotope data trends for climatic impacts on hydrology. The Agency's Isotope Hydrology Laboratory continues to support Member States in enhancing self-reliance and performance of established and new isotope hydrology laboratories through training and e-learning activities in hydrological sciences and isotope data interpretation.

Subprogramme 2.3.2 Isotope Based Assessment and Management of Water Resources supports a growing number of Member States to conduct comprehensive water resources assessments at the national and regional levels to achieve water security. Support will often be based on completion of the IWAVE 2.0 evaluation process. Through its technical cooperation (TC) programme and projects with other United Nations organizations, the Agency plays a unique role in helping Member States conduct comprehensive, science-based assessments using nuclear techniques. Definitions of projects and work plans are based on the water issue priorities identified by Member States and through IWAVE 2.0 and existing institutional and legal frameworks. The number of requests for TC projects to assess vulnerability to groundwater pollution and related water quality issues has increased in recent years. The Agency will foster and promote the development of new field and laboratory approaches and methods based on the application of environmental isotopes to address these requests.

Subprogramme 2.3.3 Radioisotope Applications for Hydrology facilitates and promotes access to the use of environmental radionuclides, dissolved noble gases and their isotopes in the context of water resources assessment and management. The planned activities consolidate the efforts to improve the use of such tracers in TC projects and coordinated research activities, and to broaden the use of long lived and short lived radionuclides for

groundwater age dating, recharge and vulnerability mapping assessments, and for tracing sources of pollution. Several of these activities will develop new field and laboratory methodologies aimed at routine application of these approaches in combination with other hydrological and geochemical tools in Member States.

Objectives, Outcomes and Performance Indicators by Programme

Programme 2.3 Water Resources	
Objectives:	
— *To support Member States applying isotope hydrology techniques for assessment and management of their freshwater resources, including hydroclimatic change impacts on water resources distribution and availability.*	
Outcomes	**Performance Indicators**
• Increased Member State use of Agency services for sustainable water resources management and related legal and policy development based on a scientifically sound evaluation of water resource availability and quality.	• Number of Member States using Agency services, isotope hydrology methodologies and global isotope data sets for water resources assessment and management, including adaptation to hydroclimate change.
• Trained human resources and available infrastructure in Member States using Agency services for the integration and routine use of isotope hydrology methods in water resource assessments.	• Number of Member States that have implemented or initiated water resources assessment programmes using isotope techniques with Agency assistance. • Number of laboratories in Member States able to produce reliable stable isotope, tritium and noble gas isotope analyses of water samples as a result of Agency assistance.

Subprogramme 2.3.1 Isotope Data Networks for Hydrology and Climate Studies	
Objectives:	
— *To provide Member States with access to global isotope data and mapping products and to disseminate isotope hydrology information through publications and training.*	
Outcomes	**Performance Indicators**
• Increased use by Member State institutions of the isotope technology developed by the Agency for water resources assessment and management.	• Number of Member States having implemented or initiated water resources assessment programmes or participating in GNIP using isotope techniques developed by the Agency.
Projects	
Title	**Main Planned Outputs**
2.3.1.001 IAEA isotope data networks for precipitation, rivers and groundwater	Annual updates of the Agency's global water isotope databases (GNIP and GNIR), including adding a growing number of monitoring stations in Member States; training courses on analytical methods and data interpretation.
2.3.1.002 Synthesis and dissemination of global isotope data and related information	Training courses, e-learning materials, digital maps, databases, newsletters and outreach materials produced by the Agency and in collaboration with various partners.

Subprogramme 2.3.2 Isotope Based Assessment and Management of Water Resources	
Objectives:	
— *To support Member States in adopting isotope techniques for local and national water resource assessments for surface water and groundwater management.*	
Outcomes	**Performance Indicators**
• Increased Member State use of isotope hydrology techniques as part of water resources assessment and management efforts.	• Number of Member States using Agency isotope hydrology methods as part of 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	Reports on the assessment of large transboundary watersheds and aquifers.

Subprogramme 2.3.3 Radioisotope Applications for Hydrology	
Objectives:	
— *To support Member States in using radioisotopes in surface water and groundwater management.* — *To support Member States in strengthening their capacity in the analysis of environmental radioisotopes in water samples.*	
Outcomes	**Performance Indicators**
• Increased Member State use of Agency assistance in improving assessment and management of surface water and groundwater systems using radioisotopes.	• Number of Member States using radionuclides and noble gas isotopes for water resource assessment as a result of Agency assistance.
• Increased Member State use of Agency services in the analysis of tritium in water samples.	• Number of isotope hydrology laboratories in Member States able to produce high quality tritium isotope data as a result of Agency assistance.
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 measurements of noble gases and radioisotope sampling and analysis.
2.3.3.002 Noble gas isotopes for groundwater recharge and pollution studies	Improved sampling and analysis of helium isotopes; technical reports illustrating the use of noble gases; training courses; reports of proficiency tests.

Programme 2.4 Marine Environment

Understanding and protecting coastal and marine ecosystems and their associated biota is essential for a healthy life, for sustainable development, and to help Member States work towards the United Nations Sustainable Development Goals (SDGs), especially SDG 13 “Climate Action” and SDG 14 “Life Below Water”. Major threats to the coastal and marine environment, such as resource overexploitation, habitat loss, invasive species, pollution, and climate- and ocean-change impacts continue to reduce biodiversity and quality of life, while compromising the provision of key ecosystem services.

Nuclear and derived techniques have an important role to play in the implementation of tailored science for real-time and future mitigation and adaptation strategies. The goal of this Programme is to support Member States in enhancing their capacity to use nuclear and derived techniques to better understand marine climate- and ocean-change impacts, and to identify and address marine problems caused by radioactive and non-radioactive pollutants.

The activities of this Programme support Member States in improving the analytical and assessment capabilities of their laboratories, thus contributing to international trade, ecological sustainability, effective marine environmental risk assessment, and remediation of environmentally stressed marine ecosystems. The Programme further supports Member States in building their capacity to address marine plastic pollution, blue carbon, and elevated environmental levels of radioactive or other contaminants, as well as to sustainably manage marine environments and their natural resources. The Programme also provides scientific information to other international organizations and plays a coordination role in important areas such as ocean acidification, and international transparency and validation of marine environmental monitoring data.

Lessons learned from reviews, assessments and evaluations: Climate- and ocean-change remain a top priority for many Member States and their ability to participate in and lead their own science-based associated decision making remains paramount. Accurate and timely assessments of climate- and ocean-change impacts and identification of key information gaps at national, regional and interregional efforts remain of critical importance.

Additionally, an informed evaluation of the role of nuclear and isotopic techniques in addressing a broad range of marine topics will assure that the proposed work is relevant and highlights the comparative advantage over conventional methods in environmental and marine science. The newly upgraded radionuclide data portal, the Marine Radioactivity Information System (MARIS), serves Member States as a one-stop repository for marine radioactivity information.

The IAEA Marine Environment Laboratories will continue to provide relevant marine science-based assessments and associated tools and data to assist Member States to address their priority marine challenges and contribute towards their SDG goals and targets. To meet growing Member States' demands for the provision of science for marine plastics and blue carbon assessments, the IAEA Marine Environment Laboratories will expand their efforts in line with available resources.

Specific criteria for prioritization:

1. Activities that enable Member States to address and work towards the SDG goals and targets and contribute to the United Nations Decade of Ocean Science for Sustainable Development process.
2. Activities that support Member State laboratories through networking and development of guidelines and best practices, and to enhance their environmental awareness and management using nuclear and derived techniques.
3. Activities that support Member States in actions conducive to lowering technical barriers to trade and supporting the competitiveness of least developed and developing countries.
4. Enhancing cooperation with Member State institutions via networks (e.g. the ALMERA network), the Programme for the Assessment and Control of Pollution in the Mediterranean Region (MED POL), and the Baltic Marine Environment Protection Commission (HELCOM), as well as through Agency Collaborating Centres, regional marine conventions and other partnerships at national, regional and international levels.

Programmatic Changes and Trends

Subprogramme 2.4.1 Nuclear Techniques to Understand Climate and Environmental Changes will promote the use of nuclear and derived techniques to advance our understanding of climate- and ocean-change impacts such as blue carbon, ocean warming, acidification and deoxygenation effects on coastal and marine ecosystems and their associated biota. The IAEA Marine Environment Laboratories assist Member States in enhancing analytical self-reliance and performance in new and existing laboratories, complementing other training activities on climate- and ocean-change impacts and promoting associated data interpretation/comparison.

Subprogramme 2.4.2 Nuclear Techniques to Monitor and Assess Pollution applies nuclear and related techniques to reliably measure and assess radioactive and non-radioactive pollution in the marine environment. The terrestrial component of pollution monitoring has been transferred with the Terrestrial Environmental Laboratory to Programme 2.5 managed by the Division of Physical and Chemical Sciences. This Subprogramme will expand collaboration with global organizations, marine conventions, Collaborating Centres, and the ALMERA network. The Agency's MARIS database has been substantially upgraded and will continue to be developed.

Subprogramme 2.4.3 Analytical Techniques to Protect Biodiversity and Ecosystem Services has two objectives: to continue to develop nuclear and derived techniques to provide Member States with powerful tools to assess contaminant levels and to study their sources, behaviour and impact on marine ecosystem services; and to provide quality assurance services to Member States and their laboratories to produce good quality marine contaminants monitoring data. This Subprogramme will support Member States through international initiatives, such as the UNEP-administered Barcelona, Minamata and Stockholm Conventions, by providing analytical references of the highest standard, developing knowledge, strengthening analytical capacities of Member States, and transferring know-how on marine environmental assessments of contaminated sites. The production of reference materials and the organization of proficiency tests for contaminant analysis have been moved under this Subprogramme.

Objectives, Outcomes and Performance Indicators by Programme

Programme 2.4 Marine Environment
Objectives:
— *To support Member States to address and mitigate their most pressing marine challenges using nuclear and derived techniques while enhancing their expertise and capability to develop tailored science-based strategies for the sustainable management of marine ecosystems.*

Outcomes	Performance Indicators
• Increased Member State use of nuclear and derived techniques to address marine climate- and ocean-change impacts.	• Number of Member States supported to work towards relevant SDGs, including the United Nations Decade of Ocean Science for Sustainable Development, by addressing pressing coastal and marine challenges using nuclear and derived techniques. • Number of new certified reference materials produced, proficiency tests organized, and analytical methodologies published or validated.
• Increased Member State use of Agency services to enhance their expertise and capability to develop strategies for the sustainable management of marine ecosystems and associated biota.	• Number of Member States participating in Agency research, monitoring or training activities to enhance their capability to develop strategies to protect the environment and use natural resources sustainably.

Subprogramme 2.4.1 Nuclear Techniques to Understand Climate and Environmental Changes

Objectives:

— *To support Member States in building expertise and capacity to assess climate- and ocean-change impacts through the development and application of tailored nuclear and derived research and development.*

Outcomes	Performance Indicators
• Increased Member State use of Agency services to develop and apply nuclear and derived techniques to assess the effects of climate- and ocean change impacts.	• Number of Member State experts trained by the Agency in the use of nuclear and derived techniques to assess climate- and ocean-change impacts.
• Increased Member State expertise and capacity to develop tailored science-based strategies for the sustainable management of marine ecosystems.	• Number of Member States with expertise and capacity increased to address pressing marine challenges, such as blue carbon, and ocean acidification, warming and deoxygenation. • Number of Member State experts searching the Ocean Acidification International Coordination Centre (OA-ICC) website for information on ocean acidification and potential socio-economic impacts.

Projects

Title	Main Planned Outputs
2.4.1.001 Isotopic tools to study climate and environmental change	Publications and best practices guidelines on the application of nuclear and derived techniques to studies of climate- and ocean-change impacts.
2.4.1.002 Assessing carbon cycle and impacts of ocean acidification	Publications and best practices guidelines on the application of nuclear and derived techniques to studies of the marine carbon cycle and associated climate- and ocean-change impacts; updates of the OA-ICC web site; training events and information exchange.

Subprogramme 2.4.2 Nuclear Techniques to Monitor and Assess Pollution

Objectives:

— *To support Member States in enhancing their capabilities to use nuclear techniques for assessing pollution and the impacts of contaminants on the marine environment for informed environmental management decisions in routine and emergency situations.*

Outcomes	Performance Indicators
• Increased Member State use of Agency services on nuclear techniques for monitoring the occurrence, dispersion and trends of radioactive and non-radioactive pollutants and for assessing their origin, behaviour and impacts on the marine environment.	• Number of Member States receiving support from the Agency to efficiently use nuclear applications to assess pollution and impacts of contaminants on the coastal and marine environment.

Outcomes	Performance Indicators
• Increased use of information, data, real time measurements and numerical tools by Member State experts in support of marine environment management and decision making for routine and emergency situations.	• Number of Member State experts accessing the MARIS database.
Projects	
Title	**Main Planned Outputs**
2.4.2.001 Radioactive and non-radioactive pollution and impact on environment	Publications and guidelines on the application of nuclear and derived techniques to the study of environmental pollution.

Subprogramme 2.4.3 Analytical Techniques to Protect Biodiversity and Ecosystem Services	
Objectives:	
— *To provide scientific and technical support and expertise to Member States on the application of nuclear and derived techniques to understand the transfer, behaviour and impact of contaminants, biotoxins related to harmful algal blooms (HABs) and radionuclides with regard to biodiversity, food safety and ecosystem services of the marine environment.*	
Outcomes	**Performance Indicators**
• Increased Member State use of Agency quality assurance, and research and development services to apply nuclear and derived techniques to assess the occurrence, transfer and impact of contaminants with regard to the environment.	• Number of proficiency tests and training courses organized, reference materials certified, and analytical methods developed or improved to increase the quality of Member States' contaminant analysis data.
• Increased Member State use of Agency marine reference laboratory services to assess nuclear and non-nuclear pollutants in the environment.	• Number of Member States assisted to obtain or verify their contaminant analysis, and technical support of contaminant monitoring studies.
• Increased Member State use of Agency services related to the accumulation and transfer of contaminants (radioactive and non-radioactive, biotoxins related to HABs) in target marine organisms.	• Number of Member States that have gained expertise through the Agency using nuclear and atomic techniques related to the accumulation and transfer of contaminants.
Projects	
Title	**Main Planned Outputs**
2.4.3.001 Developing methodologies for environmental monitoring and assessment	Analytical methodologies for the determination of nuclear and non-nuclear contaminants; provision of quality assurance services to improve or maintain the quality of Member States' laboratories; capacity building in Member States to improve knowledge of environmental monitoring, assessment and remediation
2.4.3.002 Nuclear techniques for management of ecosystem service	Best practices guidelines and other scientific publications; training events and field guides to facilitate the transfer of technical information to Member States; hands-on training events and mentorships for visiting scientists from Member States.

Programme 2.5 Radiochemistry and Radiation Technology

Radioisotopes and radiation technology have numerous beneficial applications in diverse areas such as health care, food safety and security, the environment and industry. This Programme will continue to focus on applications in these diverse areas to address the needs of Member States. The Programme's enhanced portfolio, through the incorporation of the Terrestrial Radiochemistry Environmental Laboratory (formerly Terrestrial Environmental Laboratory) in Seibersdorf, will help meet these needs in an increasingly effective manner.

In response to increasing demand, the Programme's technical activities will be aimed at supporting Member States in building their capacity for the sustainable use of relevant technologies, with an emphasis on best

laboratory/industrial work practice, quality assurance, safety, compliance with relevant national regulatory requirements and certification. These technical activities will be complemented by the development of technical documents, guidelines, web based educational materials and e-learning modules.

In health care, the focus will continue to be on activities relating to the production of medical radioisotopes, including ^{99}Mo/^{99m}Tc and other diagnostic isotopes; emerging therapeutic radionuclides, including alpha emitters; and theragnostic and molecular targeting radiopharmaceuticals, with an emphasis on the regulatory aspects of their use. Activities in industrial and environment applications of radiotracers, radiation technology and nuclear analytical methods will focus on training and certification to support Member States in enabling the safe use of such technologies, on environmental monitoring applications in general and on the assessment of civil engineering structures in particular. Another area of focus is radiation technologies that address emerging needs such as phytosanitary treatment of industrial effluents or potential biohazards; preservation of cultural heritage objects; recycling of plastics; and production of high value products such as nanomaterials. Practical training will be provided and e-learning tools will be produced in cooperation with collaborating institutes.

Lessons learned from reviews, assessments and evaluations: Successful, sustainable deployment and applications of nuclear techniques in Member States need the engagement of all stakeholders from the beginning, including appropriate training and certification of personnel. Although applications of radiotracer and radiation-based techniques in industry are well established in many countries, these applications are continually evolving and being optimized to suit emerging needs. In the aftermath of recent natural disasters, the Agency has provided support to Member States in the use of non-destructive testing for evaluation of structural integrity. This has highlighted the need to be ready to respond to such events, as well as the need to provide training in non-destructive testing techniques.

Specific criteria for prioritization:

1. Support Member States in their use of nuclear techniques that have a clear advantage over non-nuclear techniques.
2. Support Member States in developing holistic training strategies for skilled human resources, safe working practices and compliance with national regulatory requirements.
3. Support Member States in the global production and supply of radioisotopes.
4. Support Member States in developing methodologies for recycling plastics using radiation.

Programmatic Changes and Trends

Subprogramme 2.5.1 Radioisotope Products for Cancer Management and Non-communicable Diseases will address alternative technologies for producing ^{99}Mo/^{99m}Tc, novel kits for labelling with ^{99m}Tc and ^{68}Ga, and emerging therapeutic radionuclides and radiopharmaceuticals, including the use of radiopharmaceuticals for COVID-19 related disorders, as a response to Member State interest in the stable supply of medical isotopes. The Subprogramme will focus on supporting Member States in developing diagnostic radiopharmaceuticals (based on ^{64}Cu, ^{68}Ga, ^{99m}Tc and ^{89}Zr) and therapeutic radiopharmaceuticals (based on ^{177}Lu, ^{225}Ac and new beta, alpha and Auger emitters). It will also assist Member States in implementing good manufacturing practice and quality assurance programmes in radioisotope and radiopharmaceutical production. Education and training, including e-learning and certification programmes, will be pursued, and the International Symposium on Trends in Radiopharmaceuticals (ISTR-2023) will be held. Close internal coordination with Programmes 1.4 and 2.2 will be ensured as well as collaboration with external partners such as the WHO, associations and societies, and the Agency's Collaborating Centres in relevant areas. Developments related to industrial radiotracers and radionuclide generators will also be supported.

Subprogramme 2.5.2 Radiation Technology Applications in Health Care, Industries and the Environment will focus on the use of emerging radiation technologies for material modification to produce high performing, environmentally friendly materials; deactivate bio-threats and other toxic materials; preserve cultural heritage; recycle plastics; deactivate bio-threats and other toxic materials; preserve cultural heritage; recycle plastics; and the use of radiotracers, non-destructive techniques and nucleonic gauges in industry and environment. The emphasis will be on supporting Member States in education, training and quality assurance aspects of these technologies through training workshops, training meetings and e-learning (web based) tools as well as through the establishment of a repository of the most important literature. Efforts will be made to carry out practical training activities and methodologies in cooperation with the Agency's Collaborating Centres. The Subprogramme will also aim at providing technical support in the aftermath of natural disasters at the request of Member States.

Subprogramme 2.5.3 Terrestrial Environmental Radiochemistry is newly created, incorporating aspects of the former Subprogrammes 2.4.1 and 2.4.4, and focuses on assisting Member States in addressing terrestrial and atmospheric pollution problems. The Subprogramme will focus on providing support to Member States in tackling pollution problems and climate change, in order to contribute to the achievement of the SDGs, supported by laboratory quality assurance activities involving reference materials, proficiency tests and ensuring radiological emergency analytical preparedness of Member State laboratories. Support to the ALMERA network will continue.

Objectives, Outcomes and Performance Indicators by Programme

Programme 2.5 Radiochemistry and Radiation Technology	
Objectives:	
— *To support Member States in strengthening their capability to produce radioisotopes and radiopharmaceuticals.* — *To support Member States in applications of radiotracers and radiation technology for industrial and other uses, and in application of nuclear analytical techniques to address environmental challenges.*	
Outcomes	**Performance Indicators**
• Increased Member State use of Agency services to produce radioisotopes and radiolabelled products for use in health care, industry, research and other suitable areas.	• Number of Member State laboratories involved in developing and utilizing methodologies for radioisotope production using research reactors, cyclotrons, linear accelerators and generators as well as for radiopharmaceutical production for diagnosis and therapeutic applications. • Number of technical documents produced and made available to Member States on topics related to medical radioisotope or radiopharmaceutical production.
• Increased Member State use of Agency services in the use of radiotracers and radiation technologies for industrial applications, environmental remediation and production of novel high performance materials.	• Number of Member State laboratories trained in developing and utilizing methodologies dealing with radiotracers, non-destructive testing, nucleonic control systems, radiation processing, material modification for efficient industrial processes management, development of products, environmental remediation, and preservation of cultural heritage artefacts. • Number of technical documents, databases and guidebooks made available and used in Member States.
• Increased capability of Member States' institutions to address pollution, climate change and other environmental challenges and to mitigate their detrimental consequences.	• Number of scientists and technicians participating in training events, round robin tests and proficiency testing.

Subprogramme 2.5.1 Radioisotope Products for Cancer Management and Non-communicable Diseases	
Objectives:	
— *To support Member States in enhancing their capability to locally produce medical radioisotopes or radiopharmaceuticals for use in support of the management of cancer and other non-communicable diseases.*	
Outcomes	**Performance Indicators**
• Increased Member State use of Agency services in developing and producing radioisotopes or radiopharmaceuticals that contribute to improving health care.	• Number of Member State laboratories involved in developing and utilizing methodologies for radioisotope production using research reactors, cyclotrons, linear accelerators and generators as well as for radiopharmaceuticals production for diagnosis and therapeutic applications. • Number of technical documents produced and made available to Member States on topics related to medical radioisotope or 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 medical radioisotopes; alternative technologies for production of ^{99}Mo/^{99m}Tc and ^{99m}Tc generators; production methodologies for medical radioisotopes used for positron emission tomography diagnosis (^{68}Ga, ^{89}Zr), for therapy (beta, alpha and Auger emitters) and for theranostics.
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 and respective quality control procedures and pre-clinical tests, including the use of radiopharmaceuticals for COVID-19 related disorders; educational and training programmes, including e-learning; organization and implementation of the International Symposium on Trends in Radiopharmaceuticals to be held in 2023.

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

Objectives:

— *To support Member States in enhancing their capability to adopt and use radiation technologies for the development of products for health care and industry, environmental remediation, preservation of artefacts, and cleaner and safer industrial processes.*

Outcomes	**Performance Indicators**
• Increased national capabilities to use radiation techniques for efficient industrial process management and development, and in the assessment of civil engineering structures and environment impacts.	• Number of Member State laboratories trained in developing and utilizing the methodologies dealing with radiotracer techniques, non-destructive testing and nucleonic control systems for efficient industrial processes management and development, and in assessment of civil engineering structures and environment impacts. • Number of technical documents and training materials made available and used in Member States.
• Increased national capabilities to use radiation technologies for sterilization, development of advanced products for health care and industry, environment remediation, and preservation of cultural heritage artefacts.	• Number of Member State laboratories trained in developing and utilizing methodologies of radiation processing and material modification for sterilization, for development of products for health care and industry, for environment remediation and for preservation of cultural heritage artefacts. • Number of technical documents, databases and guidebooks made available and used in Member States.

Projects	
Title	**Main Planned Outputs**
2.5.2.001 Applications of radiotracers and radiation techniques	Manuals, e-learning modules, guidelines and training materials on non-destructive testing, nucleonic control systems (sealed radiation sources) and radioactive tracer applications in industry, civil engineering and environment; projects and meetings dealing with new technologies for the same applications; support of activities involving Agency Collaborating Centres.

Title	Main Planned Outputs
2.5.2.002 Radiation processing technologies and applications	Methodologies, guidelines, e-learning modules, training materials and standard procedures for radiation applications for food safety, health care, industry, recycling of plastics and remediation of pollutants; workshops and meetings on emerging techniques; support of activities involving Agency Collaborating Centres.

Subprogramme 2.5.3 Terrestrial Environmental Radiochemistry

Objectives:

— *To support Member States to deliver reliable scientific data and apply impact assessment tools to address challenges posed by environmental pollution and climate change.*

Outcomes	Performance Indicators
• Increased capability of Member States' institutions to address pollution problems, climate change and environmental challenges and to mitigate their detrimental consequences.	• Total number of scientists and technicians participating in training events and proficiency testing.

Projects

Title	Main Planned Outputs
2.5.3.001 Quality assurance and control in environmental nuclear analytical techniques	Annual proficiency tests for the ALMERA network and worldwide open proficiency tests on radionuclides in environmental samples; tailored reference materials for Member State laboratories; analytical procedures for analysis of radionuclides; training courses on sampling and analysis; quality system maintenance and expanded accreditation.
2.5.3.002 Nuclear techniques to monitor and assess terrestrial and atmospheric pollution	Publications; online training material on environmental sampling; training courses.

Major Programme 2 — Nuclear Techniques for Development and Environmental Protection

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

Programme/Subprogramme/Project	2022 at 2022 Prices		2023 at 2022 Prices	
	Regular Budget	Unfunded	Regular Budget	Unfunded
2.0.0.001 Overall management, coordination and common activities	1 956 788	169 432	1 956 815	387 070
2.0.0.002 Management of coordinated research activities	697 428	-	697 428	-
2.0.0.003 Outreach and partnerships coordination	113 659	-	113 659	-
2.S Corporate shared services	6 155 264	149 398	6 155 263	157 281
	8 923 139	**318 831**	**8 923 166**	**544 351**
2.1.1.001 Land management for climate-smart agriculture	1 026 686	144 741	1 005 357	144 741
2.1.1.002 Water management for resource saving agriculture	933 034	286 693	898 159	286 693
2.1.1.003 Assessment of food and soil contamination during radiological emergencies	267 790	-	323 994	-
2.1.1 Sustainable Land and Water Management	2 227 510	431 434	2 227 510	431 434
2.1.2.001 Improving animal production and breeding	792 056	206 208	771 450	206 208
2.1.2.002 Decreasing transboundary animal disease threats	772 597	437 412	762 109	437 412
2.1.2.003 Early detection, rapid diagnosis and control of zoonotic diseases	767 224	14 353 445	798 318	16 051 835
2.1.2 Sustainable Intensification of Livestock Production Systems	2 331 877	14 997 066	2 331 877	16 695 456
2.1.3.001 Food irradiation applications using novel radiation technologies	389 270	194 871	447 396	140 455
2.1.3.002 Traceability for food safety and quality to enhance international trade	1 475 199	485 763	1 417 073	540 179
2.1.3.003 Cost-effective nuclear techniques for responding to food contamination during emergencies	40 680	331 075	40 680	434 639
2.1.3 Improvement of Food Safety and Food Control Systems	1 905 149	1 011 709	1 905 149	1 115 274
2.1.4.001 SIT and related technologies to manage major insect plant pests	1 552 907	962 420	1 556 618	897 129
2.1.4.002 Management of livestock insect pests for sustainable agriculture	947 735	193 050	953 388	193 050
2.1.4.003 Development of the SIT for the control of disease transmitting mosquitoes	1 192 837	1 043 442	1 183 474	1 108 733
2.1.4 Sustainable Control of Major Insect Pests	3 693 480	2 198 912	3 693 480	2 198 912
2.1.5.001 Mutation induction for better adaptation to climate change	1 042 764	288 748	1 010 155	252 431
2.1.5.002 Integrated techniques for mutation breeding and biodiversity	960 852	403 700	993 461	440 018
2.1.5 Crop Improvement for Intensification of Agricultural Production Systems	2 003 616	692 449	2 003 616	692 449
2.1 Food and Agriculture	**12 161 632**	**19 331 569**	**12 161 632**	**21 133 524**
2.2.1.001 Health effects of nutrition and the environment	1 855 660	-	1 830 235	-
2.2.1 Nutrition for Improved Human Health	1 855 660	-	1 830 235	-
2.2.2.001 Nuclear medicine and radiology techniques in health conditions	1 323 894	119 701	1 306 656	190 712
2.2.2.002 Clinical data management and education in nuclear techniques in health	708 160	108 819	708 160	108 819
2.2.2.003 Medical imaging and radiomics	42 062	160 686	42 062	160 686
2.2.2.004 Communicable disease management	32 191	813 600	32 191	25 424
2.2.2 Nuclear Medicine and Diagnostic Imaging	2 106 307	1 202 806	2 089 069	485 642
2.2.3.001 Clinical radiation oncology	1 536 105	-	1 535 702	-
2.2.3.002 Biological effects of radiation	429 328	637 041	429 795	604 396
2.2.3 Radiation Oncology and Cancer Treatment	1 965 433	637 041	1 965 497	604 396
2.2.4.001 Calibration and auditing services	1 401 579	-	1 401 576	-
2.2.4.002 Developments in radiation dosimetry	567 513	-	567 512	-
2.2.4.003 Clinical medical radiation physics	1 202 984	125 015	1 245 589	43 528
2.2.4 Dosimetry and Medical Physics for Imaging and Therapy	3 172 077	125 015	3 214 677	43 528
2.2 Human Health	**9 099 476**	**1 964 862**	**9 099 478**	**1 133 565**

Major Programme 2 — Nuclear Techniques for Development and Environmental Protection

Summary of Programme Structure and Resources

(excluding Major Capital Investments)

	2022 at 2022 Prices		2023 at 2022 Prices	
Programme/Subprogramme/Project	**Regular Budget**	**Unfunded**	**Regular Budget**	**Unfunded**
2.3.1.001 IAEA isotope data networks for precipitation, rivers and groundwater	803 040	-	668 496	-
2.3.1.002 Synthesis and dissemination of global isotope data and related information	495 474	-	644 860	-
2.3.1 Isotope Data Networks for Hydrology and Climate Studies	1 298 514	-	1 313 356	-
2.3.2.001 Comprehensive assessment of resources	772 348	-	730 484	-
2.3.2.002 Management strategies for groundwater and surface water resources	480 752	-	505 632	-
2.3.2 Isotope Based Assessment and Management of Water Resources	1 253 099	-	1 236 117	-
2.3.3.001 Characterization of fossil groundwater using long-lived radionuclides	472 482	-	521 467	-
2.3.3.002 Noble gas isotopes for groundwater recharge and pollution studies	853 761	-	806 918	-
2.3.3 Radioisotope Applications for Hydrology	1 326 243	-	1 328 385	-
2.3 Water Resources	**3 877 856**	**-**	**3 877 858**	**-**
2.4.1.001 Isotopic tools to study climate and environmental change	725 607	-	738 612	-
2.4.1.002 Assessing carbon cycle and impacts of ocean acidification	854 748	320 189	836 386	320 189
2.4.1 Nuclear Techniques to Understand Climate and Environmental Changes	1 580 355	320 189	1 574 998	320 189
2.4.2.001 Radioactive and non-radioactive pollution and impact on environment	1 363 675	343 705	1 407 180	343 705
2.4.2 Nuclear Techniques to Monitor and Assess Pollution	1 363 675	343 705	1 407 180	343 705
2.4.3.001 Developing methodologies for environmental monitoring and assessment	1 315 312	320 189	1 277 165	320 189
2.4.3.002 Nuclear techniques for management of ecosystem service	611 836	124 980	611 837	124 980
2.4.3 Analytical Techniques to Protect Biodiversity and Ecosystem Services	1 927 148	445 169	1 889 001	445 169
2.4 Marine Environment	**4 871 178**	**1 109 063**	**4 871 179**	**1 109 063**
2.5.1.001 Development and production of medical radioisotopes	450 097	-	473 942	-
2.5.1.002 Development of diagnostic and therapeutic radiopharmaceuticals	637 447	-	656 269	-
2.5.1 Radioisotope Products for Cancer Management and Non-communicable Diseases	1 087 544	-	1 130 211	-
2.5.2.001 Applications of radiotracers and radiation techniques	639 298	-	604 647	-
2.5.2.002 Radiation processing: technologies and applications	828 535	378 980	820 518	378 980
2.5.2 Radiation Technology Applications in Health Care, Industries and the Environment	1 467 833	378 980	1 425 165	378 980
2.5.3.001 Quality assurance and control in environmental nuclear analytical techniques	888 731	-	898 766	-
2.5.3.002 Nuclear techniques to monitor and assess terrestrial and atmospheric pollution	1 137 917	-	1 127 851	-
2.5.3 Terrestrial Environmental Radiochemistry	2 026 647	-	2 026 618	-
2.5 Radiochemistry and Radiation Technology	**4 582 024**	**378 980**	**4 581 994**	**378 980**
Major Programme 2 - Nuclear Techniques for Development and Environmental Protection	**43 515 306**	**23 103 304**	**43 515 306**	**24 299 483**

Major Programme 2 — Nuclear Techniques for Development and Environmental Protection

Activities unfunded in the Regular Budget

(excluding Major Capital Investments)

Project	Tasks	2022 Unfunded	2023 Unfunded
2.0.0.001 Overall management, coordination and common activities	Overall management, coordination and common activities	169 432	387 070
2.1.1.001 Land management for climate-smart agriculture	Soil management for climate smart agriculture and crisis response in food and agriculture	144 741	144 741
	CRP on Compound Specific Stable Isotopes and related techniques for improving climate smart agriculture		
2.1.1.002 Water management for resource saving agriculture	Technologies and practices for sustainable use and management of water in agriculture	286 693	286 693
2.1.2.001 Improving animal production and breeding	Enhanced sustainable animal nutrition, reproduction and breeding through climate smart agriculture	206 208	206 208
	CRP on Early and Rapid Diagnosis and Control of Transboundary Animal Diseases — Phase II: African Swine Fever		
	CRP on Improving efficiency of animal breeding programs using nuclear related genomic information – practical applications in developing countries		
2.1.2.002 Decreasing transboundary animal disease threats	Reducing risks from transboundary animal and zoonotic diseases, including those with biothreat potential to promote biosecurity and increased livestock productivity, utilizing the VETLAB (Veterinary Diagnostic Laboratory Network) network of veterinary diagnostic laboratories	437 412	437 412
2.1.2.003 Early detection, rapid diagnosis and control of zoonotic diseases	Reducing risks from zoonotic diseases, including those with biothreat potential to promote biosecurity and biosafety, to increase livestock productivity and improve veterinary public health and strengthening veterinary laboratory capacities	14 353 445	16 051 835
	Innovative technologies, methods and protocols for zoonotic diseases pathogens (ZODIAC Pillar 2), IAEA IT platforms on zoonotic diseases strengthened including geo-visualization tools for multiple users (ZODIAC Pillar 3), Emergency related to zoonotic diseases outbreaks (ZODIAC Pillar 5)		
	CRP on Veterinary diagnostic laboratory network implementing whole genome characterization of zoonotic pathogens		
	CRP on Technologies to mine zoonotic pathogens at the animal-human interface		
	CRP on Development, validation and bio-banking of primary / secondary serology standards for specific zoonotic diseases of animals, including materials and procedure for ring trials		
	Two CRPs on Development, validation and bio-banking of primary / secondary molecular standards for specific zoonotic diseases of animals, including materials and procedure for ring trials, one CRP related to Serology Standards, and the other CRP related on Molecular Standards.		
2.1.3.001 Food irradiation applications using novel radiation technologies	Increased use and development of food irradiation techniques (including low energy beam treatments) for food quality and safety, pest control, to enable international trade and offer food security resilience	194 871	140 455
	CRP on Novel Irradiation Technology for Phytosanitary Treatment of Food Commodities and Promotion of Trade		
2.1.3.002 Traceability for food safety and quality to enhance international trade	Enhancing control of food residues and contaminants, adulterants and authenticity, supporting food traceability systems, and promoting sustainable agricultural production through the application of nuclear techniques	485 763	540 179
	CRP on Nuclear Techniques to Support Risk Assessment of Biotoxins in Food & Related Matrices		
2.1.3.003 Cost-effective nuclear techniques for responding to food contamination during emergencies	The development and transfer of cost-effective analytical methods and techniques that can be rapidly deployed in food crisis situations to provide information vital for decision making, to enable remedial action and mitigation.	331 075	434 639
	CRP on Rapid Screening for Safe Food		
2.1.4.001 SIT and related technologies to manage major insect plant pests	Improvement and transfer to Member States of the Sterile Insect Technique (SIT) in support of the area-wide integrated suppression of major plant pests to reduce losses and insecticide use and to facilitate international trade	962 420	897 129
	CRP on Improving the mass-rearing of Lepidoptera pests for SIT programmes		
2.1.4.002 Management of livestock insect pests for sustainable agriculture	Technical support to SIT (Sterile Insect Technique) development and transfer for the area-wide management of major transboundary livestock insect pests for sustainable agriculture and rural development	193 050	193 050

Major Programme 2 — Nuclear Techniques for Development and Environmental Protection

Activities unfunded in the Regular Budget

(excluding Major Capital Investments)

Project	Tasks	2022 Unfunded	2023 Unfunded
2.1.4.003 Development of the SIT for the control of disease transmitting mosquitoes	Development of the Sterile Insect Technique (SIT) to contribute to the sustainable and environment-friendly control of selected mosquito species that are vectors of major human diseases	1 043 442	1 108 733
	Enhance Agency's Capacity to Provide Support to Member States to Control Aedes Mosquitoes as Vectors of Human Pathogens, particularly Zika Virus, using Integrated Vector Management Approaches with Sterile Insect Technique Component		
	CRP on Mosquito male performance for Sterile Insect Technique (SIT) application on operational programmes		
2.1.5.001 Mutation induction for better adaptation to climate change	Crop improvement for better adaptation to climate change through mutation breeding and associated technologies	288 748	252 431
	CRP on Enhanced crop adaptation to climate change for food and nutrition security and farmer income		
2.1.5.002 Integrated techniques for mutation breeding and biodiversity	Enhanced efficiency in mutation breeding of seed and vegetative crops and broader plant biodiversity through the use of existing and evolving new technologies in mutation induction, selection and accelerated breeding	403 700	440 018
	CRP on Functional genomics for trait utilization to enhance efficiencies of crop improvement through mutation breeding		
2.2.2.001 Nuclear medicine and radiology techniques in health conditions	CRP on Lutetium-Labelled Peptides for Therapy of Neuroendocrine Tumours - The LUPNET Trial	119 701	190 712
	CRP on Targeted Radionuclide Therapies for Prostate Cancer – The TRUTH Trial		
	CRP on Improvement of Radiological Diagnosis of Tuberculosis for LMIC Populations – The IRADT Trial		
2.2.2.002 Clinical data management and education in nuclear techniques in health	Development of comprehensive eLearning platform for radiation therapy (CeLP-RT) - The CeLP-RT aims at supplementing basic education and clinical training, and providing a comprehensive framework for continuous professional development and interdisciplinary training to achieve best practice in radiation therapy	108 819	108 819
2.2.2.003 Medical imaging and radiomics	Databases and datasets in medical imaging and other medical infrastructure	160 686	160 686
	Radiomics for disease management		
2.2.2.004 Communicable disease management	Establish a Molecular Biology Laboratory	813 600	25 424
2.2.3.002 Biological effects of radiation	Establishing an IAEA Biological Dosimetry Model Laboratory (IAEA-BDML)	637 041	604 396
2.2.4.003 Clinical medical radiation physics	Doctoral CRP on Advances in Radiotherapy Techniques	125 015	43 528
	Graphical User Interface to be developed to support existing databases		
	Doctoral CRP in Radiation Metrology		
2.4.1.002 Assessing carbon cycle and impacts of ocean acidification	Production of IAEA reference materials and conducting proficiency tests	320 189	320 189
2.4.2.001 Radioactive and non-radioactive pollution and impact on environment	Radioanalytical, radiotracer, isotopic and related techniques and numerical assessment tools for environmental monitoring, assessment and management supporting the sustainable development and use of the environment and its resources	343 705	343 705
2.4.3.001 Developing methodologies for environmental monitoring and assessment	Development of methodologies to assess contaminants in the marine environment, transfer technology to MS, enhance partnerships with int. organizations, and provide services for the quality assurance of contaminant analysis	320 189	320 189
2.4.3.002 Nuclear techniques for management of ecosystem service	Expert support in nuclear and non-nuclear techniques to better understand the impacts of pollutants (e.g., contaminants, harmful algae, radionuclides) on biota and coastal and marine ecosystems	124 980	124 980
2.5.2.002 Radiation processing: technologies and applications	Supporting Member States on the use of radiation technologies	378 980	378 980
2.S Corporate shared services	Corporate shared services	149 398	157 281
Grand Total		**23 103 304**	**24 299 483**

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 supports Member States in meeting the demand for a higher level of safety at the growing number of nuclear installations — including uranium mining facilities — and at existing nuclear power plants (NPPs) and research reactors, whose average age continues to increase. It also supports Member States in addressing 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 nuclear fuel. In conducting these activities, the Agency fosters a strong safety and security culture.

Through Major Programme 3, the Agency performs its statutory function of establishing safety standards and providing for their application in Member States, upon request, as well as to its own operations. Major Programme 3 assists Member States in building national capacities by promoting international cooperation and by transferring nuclear safety knowledge from States with mature nuclear energy and nuclear applications programmes to States with emerging nuclear energy and nuclear applications programmes through knowledge networks. The activities under this Major Programme will continue to cover the strengthening of nuclear, radiation, transport and waste safety in a comprehensive manner, including design safety, external hazard assessment, safety culture, communication on safety, severe accident management, post-accident remediation and transition to recovery, as well as aspects related to NPP operating life extension, including organizational and human performance, decommissioning of facilities, disposal of low and 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 also focuses on providing assistance in developing and strengthening national and international capacities to prepare to respond effectively to, and to mitigate, the consequences of such an emergency. The Incident and Emergency Centre, by maintaining the current level of the position of the Head of Centre, will continue serving the growing demands from Member States.

The Agency is the global focal point for international preparedness for and response to nuclear and radiological incidents or emergencies and implements its response roles under this Major Programme.

During the biennium, the Agency will also continue to analyse Member State experience in ensuring safety, security and reliable operation of nuclear and radiation facilities and activities during the COVID-19 pandemic and perform a gap analysis of the possible implications for the safety standards and security guidance. Radiation safety and nuclear security regulations for the Agency's own activities will continue to be strengthened. Major Programme 3 will continue to focus on enhancing timely coordination within this Major Programme and with other Major Programmes to build synergies, increase effectiveness and efficiency, and reduce potential duplication in the planning and implementation of activities.

Objectives:
— *To continuously improve global safety and security through the establishment and application of safety standards and security guidance, 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 preparedness and response.*

Outcomes	Performance Indicators
• Increased Member State use of Agency tools, methodologies and expertise to strengthen nuclear safety and security at the national, regional and international levels.	• Number of peer review and advisory services conducted in the areas of nuclear safety and security. • Percentage of Agency recommendations from safety and security services addressed by Member States.
• An integrated and comprehensive set of up-to-date safety standards and security guidance available to Member States.	• Number of new or revised safety standards and security guidance.
• Enhanced global knowledge sharing networks on nuclear safety.	• Number of thematic safety areas within the safety networks. • Number of safety network members.

Projects

Title	Main Planned Outputs
3.0.0.001 Overall management, coordination, communication and common activities	Nuclear Safety Review; Programme Performance Report; reports responding to General Conference resolutions on nuclear safety and security; International Nuclear Safety Group (INSAG) publications; outreach materials.
3.0.0.002 Capacity building, knowledge networks and partnerships	Capacity building self-assessment; nuclear safety knowledge products; international conferences; senior-level meetings; partnership and resource mobilization tools and processes.
3.0.0.003 Coordination of safety standards and security guidance	Safety Requirements and Safety Guides; Nuclear Security Recommendations, Implementing Guides and Technical Guidance.
3.0.0.004 Internal control for radiation safety and nuclear security	Regulatory procedures and guidelines; reports on safety and security of Agency facilities and activities; reports on the self-assessment and independent peer review of the internal regulatory system; quality management system documents.

Programme 3.1 Incident and Emergency Preparedness and Response

Member States and the international community need to be prepared to respond effectively to nuclear and radiological emergencies, should they occur. Programme 3.1 supports Member States in enhancing specific elements of preparedness for and response to nuclear and radiological emergencies irrespective of the triggering event(s) by, for example, developing and maintaining national infrastructure elements; improving cooperation between the safety and security communities; assessing hazards and emergency management; and keeping the international community and the general public well informed. The programme also assists Member States in developing effective national and global response capabilities and arrangements to minimize the impacts of nuclear or radiological incidents and emergencies.

An effective emergency response requires a coherent initial assessment followed by adequate emergency management, which can only be achieved through coordinated emergency preparedness and response (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 Convention on Early Notification of a Nuclear Accident and the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency, as well by decisions of the Agency's Policy-Making Organs. The role is also established as part of 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 a role in assessing nuclear and radiological incidents and emergencies and in communicating their significance and potential consequences.

Lessons learned from reviews, assessments and evaluations: This programme takes into account Member States' needs and lessons identified during the performance assessment of the previous programme cycle, particularly in relation to operational arrangements for implementing relevant Conventions, to emergency responses and exercises, to peer review missions, and to the establishment of capacity building centres and networks.

Specific criteria for prioritization:

1. Activities necessary to fulfil obligations under the Convention on Early Notification of a Nuclear Accident and the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency;
2. Activities to support Member States in enhancing EPR in line with Preparedness and Response for a Nuclear or Radiological Emergency (IAEA Safety Standards Series No. GSR Part 7);
3. Activities to enhance international EPR; and
4. Activities to address lessons from response to emergencies, and from the Level 3 Convention Exercise (ConvEx-3) to be held in 2021.

Programmatic Changes and Trends

Subprogramme 3.1.1 National and International Emergency Preparedness will continue to follow up on relevant EPR activities from the preceding biennial programme cycle. The subprogramme's activities have been prepared based on EPR needs identified through assessment and evaluation of national and international EPR utilizing various means (e.g. the Emergency Preparedness and Response Information Management System (EPRIMS), Emergency Preparedness Review (EPREV) and advisory missions), taking into account the long term recommendations of the International Action Plan for Strengthening the International Preparedness and Response System for Nuclear and Radiological Emergencies, and the conclusions of meetings of the Emergency Preparedness and Response Standards Committee, meetings of Competent Authorities and meetings of the Inter-Agency Committee on Radiological and Nuclear Emergencies (IACRNE).

Subprogramme 3.1.2 IAEA IES and Operational Arrangements with Member States and International Organizations will continue to follow up on 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. The subprogramme's activities have been prepared on the basis of needs identified through the evaluation of EPR exercises, the conclusions of meetings of the Competent Authorities and relevant General Conference safety-related resolutions.

Objectives, Outcomes and Performance Indicators by Programme

Programme 3.1 Incident and Emergency Preparedness and Response	
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 event(s).* — *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 of, and during response to, nuclear or radiological incidents and emergencies, independent of the triggering event(s).*	
Outcomes	**Performance Indicators**
• Enhanced EPR arrangements and capabilities to effectively respond to a nuclear or radiological incident or emergency at the national and international levels, independent of the triggering event(s).	• Percentage of recommendations from peer review missions for the improvement of national and international EPR addressed.
• Enhanced EPR arrangements and capabilities to effectively respond to a nuclear or radiological incident or emergency at the Agency level, independent of the triggering event(s).	• Percentage of recommendations from internal full response exercises for improvement of the Agency's IES addressed.
• Maintained and improved information systems, including the Unified System for Information Exchange in Incidents and Emergencies, the International Radiation Monitoring Information System, and the Emergency Preparedness and Response Information Management System, for providing and sharing technical information and monitoring data in a nuclear or radiological incident or emergency independent of the triggering event(s).	• Percentage of recommendations from the use of information systems for improvement of the information sharing systems in a nuclear or radiological incident or emergency addressed.

Subprogramme 3.1.1 National and International Emergency Preparedness

Objectives:

- *To strengthen EPR arrangements and capabilities at the national level for effective response to nuclear or radiological emergencies irrespective of the triggering event(s) by developing and providing assistance in the application of safety standards, operational guidelines and tools through capacity building activities and EPR peer reviews.*
- *To enhance transparency and knowledge sharing in the area of EPR through more effective and comprehensive use of peer review missions and collaborative networks.*
- *To further strengthen the international EPR framework.*

Outcomes	Performance Indicators
• Strengthened national EPR arrangements and capabilities and enhanced transparency in the sharing of information on EPR and in nuclear or radiological incidents and emergencies irrespective of the triggering event(s).	• Number of Member States that have provided or updated input in EPRIMS. • Percentage of Member States in EPRIMS with high implementation of IAEA safety standards for EPR.
• Strengthened inter-agency EPR arrangements and enhanced international cooperation and coordination in EPR.	• Percentage of recommendations from IACRNE meetings and related exercises and/or lessons for improvement of international EPR arrangements addressed.

Projects

Title	Main Planned Outputs
3.1.1.001 Member State emergency preparedness	IAEA safety standards on EPR; technical guidance documents and tools; training events and materials; capacity building centres; EPRIMS database as a tool for self-assessment of Member State EPR arrangements; EPR education and training networks; peer review and advisory mission reports.
3.1.1.002 International emergency management	Review of the Joint Radiation Emergency Management Plan of the International Organizations; IACRNE meeting reports; report on the 2022 meeting of Competent Authorities; ConvEx-3 (2021) report; IACRNE procedures reviewed and updated; IACRNE website maintained; EPR activities coordinated at the international level; harmonized inter-agency response to a nuclear or radiological emergency, irrespective of the triggering event(s).

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

Objectives:

- *To maintain and continuously enhance arrangements for effective Agency emergency response, including 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 irrespective of the triggering event(s).*
- *To develop, maintain and continuously improve systems facilitating the exchange of specific information in a nuclear or radiological incident and emergency.*

Outcomes	Performance Indicators
• Increased effectiveness of the Secretariat's response and response coordination with relevant international organizations in a nuclear or radiological incident or emergency.	• Percentage of recommendations by Competent Authorities addressed.
• Increased efficiency of the international assistance mechanism and effectiveness of the 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	Annual training programme, schedule and training records; maintained and enhanced response arrangements (appendices to the Response Plan for Incidents and Emergencies, 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 irrespective of the triggering event(s); operational protocols with international organizations; Member States trained in operational arrangements; conduct of exercises, including on assessment and prognosis, public information during a nuclear or radiological emergency triggered by a nuclear security event; updated arrangements for international assistance.
3.1.2.003 Public communication in emergencies	Agency publications; implementation of the new International Nuclear and Radiological Event Scale guidance; training materials; outreach activities (newsletter, tweets, web articles, brochures); workshops and training activities.

Programme 3.2 Safety of Nuclear Installations

Programme 3.2 supports Member States in establishing the appropriate safety infrastructure and in continuously improving the safety of nuclear installations through the availability and application of up-to-date safety standards. With the completion of follow-up activities to the IAEA Action Plan on Nuclear Safety, all relevant conclusions and lessons learned from the Fukushima Daiichi accident are now fully incorporated into this programme. In addition, relevant information from other sources — such as the Convention on Nuclear Safety (CNS), including the Vienna Declaration on Nuclear Safety, the Code of Conduct on the Safety of Research Reactors and the feedback from safety review services — will be considered to ensure that the needs of Member States are addressed.

The Agency will continue to focus on the revision of existing safety standards to reflect the current state of practice in nuclear safety, rather than the establishment of new ones. Specifically, renewed interest in nuclear power and long term operation of existing installations requires clear design safety requirements and assessment capabilities consistent with advances in technology, methods and tools. Priority will thus be given to the design safety of evolutionary and innovative nuclear power technologies, such as small modular reactors (SMRs), and the operational safety of existing installations, including organizational and human performance. Although the revision of safety requirements has already been completed, drawing on relevant lessons learned from the Fukushima Daiichi accident, work will continue to develop supporting guides with regard to site and design safety and severe accident prevention and mitigation.

Application of the safety standards will continue to be actively promoted through the conduct, upon request, of safety review services and capacity building. Safety review services are an important component of assisting Member States in their efforts to continuously improve the regulatory infrastructure and the safety of nuclear installations, and the effectiveness of these services will continue to be assessed and enhanced as necessary. Analysis of findings, including the implementation rate of recommendations and suggestions, will be published on a periodic basis. In addition, Member States will be supported in building capacity and enhancing national safety infrastructure to improve regulatory effectiveness through education and training and international cooperation. For countries with mature nuclear power programmes, activities will focus on both deployment of innovative reactors and long term operation of existing installations. For countries either restarting or embarking on a nuclear power programme, capacity building will focus on regulatory and operational readiness and will be strengthened to ensure sustainability. Feedback from operating experience and the results of research and development will be more widely disseminated.

Lessons learned from reviews, assessments and evaluations: Programme 3.2 considers the results of international safety conventions, the conclusions of Agency conferences on regulatory effectiveness and on design and operational safety of nuclear installations, the findings from safety review services, and the lessons learned from operating and regulatory experience shared, respectively, through the international event reporting systems and regulatory forums and networks. Informed by these insights, the programme focuses on current and emerging

challenges, such as the effectiveness and transparency of regulatory bodies, the competency of human resources, safety assessments of evolutionary and innovative nuclear power technologies, such as SMRs, safety of long term operation of nuclear installations, and leadership and management for safety. Specifically, the programme responds to a continued demand for assistance in the development of safety infrastructure in countries embarking on a new nuclear power programme and in extending operation of existing nuclear installations.

There is also a need to provide for more effective implementation of the IAEA safety standards through streamlining the delivery of safety review services. Adherence to international safety conventions, which are important in identifying priorities and challenges to safety of nuclear installations, will continue to be actively promoted.

Specific criteria for prioritization:

1. Maintaining up-to-date safety standards, reflecting the current state of practice, and supporting conventions and codes of conduct;
2. Providing for more effective application of safety standards through streamlining the delivery of safety review services and development of supporting documents;
3. Supporting Member States in capacity building through education and training, and the exchange of information and operating experience; and
4. Strengthening international cooperation, including enhanced coordination of research and development activities.

Programmatic Changes and Trends

Subprogramme 3.2.1 Governmental Regulatory Framework and Safety Infrastructure Development will support the effective implementation of regulatory core functions, both in countries with mature nuclear power programmes and in those either restarting or embarking on a nuclear power programme. The subprogramme will respond to an increasing number of requests from Member States seeking support to enhance their safety infrastructure through, for example, Agency workshops on the licensing process for a first NPP, establishing integrated management systems, developing programmes on leadership and management for safety, as well as conducting safety culture self-assessments for regulatory bodies. Many Member States considering or actively implementing a nuclear power programme also face difficulties in developing competence to perform regulatory functions effectively, and this subprogramme will respond to these needs through providing support in the areas of education and training, human resource development, knowledge management and knowledge networks. With the growing appetite worldwide for deploying new nuclear technologies, and specifically SMRs, the Agency will also support an increasing number of Member States in addressing the regulatory challenges and licencing process through the work of the SMR Regulators' Forum.

Subprogramme 3.2.2 Safety Assessment of Nuclear Installations will, in the light of the increased interest in nuclear power as one of the means to combat climate change, in particular in the deployment of SMR technologies, as well as in long term operation of existing nuclear installations worldwide, continue to revise the safety assessment and design safety standards to ensure they represent state of the art. A goal-oriented, risk-informed and performance-based technical framework to support the application of the safety standards to innovative technologies will be elaborated to facilitate Member State efforts in reviewing and licensing nuclear power innovations. Thorough application of the safety standards will be supported through Technical Safety Review (TSR) peer reviews and the deployment of safety assessment and design safety competency building programmes. Emphasis will be placed on effective assistance in emerging topics, such as new design features, innovative power technologies, updated safety demonstration, periodic safety reviews, and microreactors and small and medium sized or modular reactors.

Subprogramme 3.2.3 Safety and Protection Against External Hazards will address many challenges to safety and protection against external hazards, including the following, highlighted by recent experiences: the effects of low probability 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 mechanisms for sharing operating experience in the case of external events. It is expected that requests from Member States for technical insights on these issues will increase. The subprogramme will 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 continue to support Member States in enhancing their capability to review long term operation and ageing management and to implement the safety requirements established in *Leadership and Management for Safety (*IAEA Safety Standards Series No. GSR

Part 2) and in *Ageing Management and Development of a Programme for Long Term Operation of Nuclear Power Plants* (IAEA Safety Standards Series No. SSG-48). The updated requirements are now included in the Operational Safety Review Team (OSART) and Safety Aspects of Long Term Operation (SALTO) services, in the Independent Safety Culture Assessment process, and in capacity building through assistance to Member States for self-assessment and continuous improvement. The Secretariat will continue to support Member States in the use of operating experience for safety performance improvement.

Subprogramme 3.2.5 Safety of Research Reactor and Fuel Cycle Facilities will focus on assisting Member States in addressing identified challenges and emergent trends with focus on regulatory effectiveness, leadership and management for safety, ageing of facilities, preparation for decommissioning, interfaces between safety and security, and development of the necessary national nuclear safety infrastructure for new research reactors and nuclear fuel cycle facilities. The activities of the subprogramme include the development of up-to-date safety standards and assistance for Member States in their application; organization of safety review and advisory services, fostering international exchange of experience; and conducting capacity building activities supporting the application of the IAEA safety standards and the Code of Conduct on the Safety of Research Reactors.

Objectives, Outcomes and Performance Indicators by Programme

Programme 3.2 Safety of Nuclear Installations

Objectives:

- *To support Member States in improving the safety of nuclear installations during site evaluation, design, construction and operation through the availability and application of up-to-date safety standards.*
- *To support Member States in establishing and enhancing their national safety infrastructure through the conduct of safety review services and facilitation of adherence to, and implementation of, the CNS and the Code of Conduct on the Safety of Research Reactors.*
- *To support Member States in capacity building through human resource development, education and training, and knowledge management and knowledge networks by means of international cooperation, including exchange of information and operating experience, and coordination of research and development activities.*

Outcomes	Performance Indicators
• An integrated and comprehensive set of up-to-date safety standards, reflecting the current state of practice, in the general areas of legal and governmental framework and safety of nuclear installations during their entire lifetime.	• Number of published new and revised safety standards and supporting documents, relevant to governmental organizations and the safety of nuclear installations.
• Appropriate safety infrastructure is established and safety of nuclear installations is continuously improved through the application of safety standards.	• Number of safety review services conducted. • Percentage of recommendations from safety review services addressed by the host Member State/host organization.
• Increased Member State use of Agency services in the areas of safety infrastructure and safety of nuclear installations focusing on the effectiveness of regulatory control, leadership and management for safety, and design and operational safety, including long term operation.	• 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 implementation of up-to-date IAEA safety standards in the regulatory area.*
- *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
• An integrated, comprehensive and consistent set of up-to-date safety standards in the area of governmental and regulatory frameworks for the safety of nuclear installations.	• Number of relevant new and revised safety standards and supporting documents.
• Sustained Member State use of Agency services and safety standards to support the development and strengthening of regulatory infrastructure.	• Number of Integrated Regulatory Review Service (IRRS) missions conducted. • Percentage of recommendations and suggestions from IRRS missions addressed.
• Use of Agency capacity building services, competency assessment tools and training programmes by Member State regulatory bodies to support the sustainability of resources for the safety of nuclear installations for emerging and mature nuclear programmes.	• Number of Agency regulatory-related events to support capacity building programmes in Member States. • Number of Member States utilizing a national strategy for building and sustaining capacity in nuclear safety.

Projects

Title	Main Planned Outputs
3.2.1.001 Regulatory effectiveness and safety infrastructure for new programmes	Safety standards, guidelines, information exchange and mission reports; information in the International Regulatory Network; provision of expert support to countries with nuclear installations and to embarking countries.
3.2.1.002 Safety standards and CNS promotion/support	Educational workshops to promote the CNS; CNS Officers' Turnover Meeting; and training, safety standards and reports.
3.2.1.003 Capacity building for installations safety and regulatory functions	Strategy for capacity building; capacity building support programme and annual plan; workshops/training events; reports; self-assessment tools; training materials; enhanced web platforms.

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 state-of-the-art safety assessment and design safety standards and providing for their application to current and innovative reactor technologies.*

— *To support Member States with advice and review services in the implementation of safety assessment and design safety standards to current and innovative technologies.*

— *To support Member States in safety assessment competency building and to assist them in addressing topical issues on safety assessment and design safety.*

Outcomes	Performance Indicators
• An integrated, comprehensive and consistent set of state-of-the-art safety standards and supporting documents in the areas of safety assessment and design safety available to Member States.	• Number of relevant new and revised safety assessment and design safety standards and supporting documents.
• Increased Member State use of the Agency services to support safety of nuclear power plant design and safety assessment performance.	• Number of safety review services conducted. • Percentage of Agency recommendations from safety review services addressed by Member States.
• Increased Member State use of Agency training methodologies in the areas of safety assessment and design safety, including for innovative reactor technologies.	• Number of Member States participating in training activities. • Number of training activities conducted in the areas of safety assessment and design safety.

Projects	
Title	**Main Planned Outputs**
3.2.2.001 Design safety of existing, evolutionary and innovative power reactors	New and revised design safety standards and associated technical documents and reports; reports on Technical Safety Reviews and advisory services for design safety; design safety related training materials and e-learning modules.
3.2.2.002 Development and application of safety assessment methods	New and revised safety assessment standards and associated technical documents and reports; reports on technical safety assessment peer review and advisory services; NPP safety assessment-related training materials and e-learning modules.

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 and with special reference to the effects from climate change, through the development of safety standards and technical guidelines for their application.*
- *To support Member States in assessing site and installation design safety with respect to external hazards, through advisory services, peer review services and capacity building initiatives.*
- *To support Member States in capacity building through education and training.*

Outcomes	Performance Indicators
• An integrated, comprehensive and consistent set of up-to-date safety standards and supporting technical documents in the areas of site safety, design safety and safety assessment in relation to external hazards.	• Number of new and revised safety standards and supporting documents in this area.
• Improved level of safety and protection against external hazards, demonstrated by follow-up review services.	• Number of Site and External Events Design (SEED) review services implemented upon request by Member States. • Percentage of recommendations from SEED missions addressed by Member States after receiving a full-scope SEED review.
• Increased Member State use of Agency training methodologies in the area of safety and protection against external hazards and external hazard assessment.	• Number of Member States participating in training activities. • Number of training activities conducted in the area of safety protection against external hazards and external hazard assessment.

Projects	
Title	**Main Planned Outputs**
3.2.3.001 Site evaluation and installation design safety	Safety standards and supporting documents in the areas of site selection and evaluation, and protection of nuclear installations against external hazards; safety review services, expert missions and workshops; software tools for alerting and assessment of damage to nuclear installations induced by external events.
3.2.3.002 Site evaluation methods and tools for installation safety assessment	Safety reports and IAEA Technical Documents (TECDOCs) on technical methods and tools required for implementing safety standards for site evaluation and safety assessment; workshops, training materials and webinars for capacity building in Member States; dissemination and sharing of information; databases and tools for improved qualification methods and design for nuclear safety.

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, leadership and culture for safety.*

— *To support Member States in capacity building by arranging training and workshops and providing advice on conducting self-assessments.*

Outcomes	Performance Indicators
• An integrated, comprehensive and consistent set of up-to-date safety standards in the areas of operational safety, safe long term operation and ageing management, operating experience, and management, leadership and culture for safety available to Member States.	• Number of new and revised safety standards and supporting documents.
• Improved operational safety in Member States.	• Number of OSART, SALTO, operating experience, and leadership and culture for safety review missions conducted. • Percentage of Agency recommendations from safety review services addressed by Member States.
• 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 OSART Mission Results (OSMIR) database; integrated revision of safety guides on operational safety; publication of OSART mission highlights; dissemination of OSART-related information on a dedicated website.
3.2.4.002 Sharing and use of international operating experience	Event reports from NPPs shared through the International Reporting System for Operating Experience (IRS) system; operating experience summary reports (IRS Blue Books); Peer Review of Operational Safety Performance Experience mission reports; Safety Guides & TECDOCs on operating experience and continuous performance improvement programmes; training courses on performance improvement, operating experience and root cause analysis.
3.2.4.003 Leadership and management for safety and safety culture in Member States	Revised Safety Guides on leadership and management for safety; safety culture continuous improvement programmes for Member States; independent safety culture assessments; training activities, meetings and workshops.
3.2.4.004 Safety of long term operation	SALTO mission and expert mission reports; support missions conducted; workshops and Technical Meetings; Safety Reports; TECDOCs and guidelines on ageing management and LTO; International Generic Ageing Lessons Learned ageing management programmes, time-limited ageing analyses, ageing management review tables and other programmes.

Subprogramme 3.2.5 Safety of Research Reactor and Fuel Cycle Facilities	
Objectives:	
— *To support Member States in enhancing safety of research reactors and fuel cycle facilities in all phases of their lifetime.* — *To assist Member States in establishing and maintaining national nuclear safety infrastructure for research reactor and fuel cycle facilities.* — *To foster the international exchange of information on operating experience and capacity building for research reactors and fuel cycle facilities.*	
Outcomes	**Performance Indicators**
• 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.	• Number of new or revised safety standards and supporting documents for research reactors and fuel cycle facilities.
• Increased Member State use of Agency services to support safety of research reactors and nuclear fuel cycle facilities.	• Number of safety review services conducted. • Percentage of Agency recommendations from safety review services addressed by Member States.
• Increased Member State use of Agency training methodologies in the area of safety of research reactors and nuclear fuel cycle facilities.	• Number of Member States participating in Agency capacity building activities in the area of safety of research reactors and nuclear fuel cycle facilities, and in the platform for exchange of experience.
Projects	
Title	**Main Planned Outputs**
3.2.5.001 Safety of research reactors	Safety standards and supporting documents; meeting and mission reports; conference proceedings; feedback on Member States' self-assessments against application of the Code of Conduct on the Safety of Research Reactors; Incident Reporting System for Research Reactors database.
3.2.5.002 Safety of fuel cycle facilities	Safety standards and supporting documents; meeting and mission reports; training materials; Fuel Incident Notification and Analysis System database.

Programme 3.3 Radiation and Transport Safety

Programme 3.3 focuses on the protection of people and the environment from the harmful effects of ionizing radiation. It covers the establishment of safety standards and provisions 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 this 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 still 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 will continue to be reviewed. The programme will provide 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 peer review and advisory services, outreach and the exchange of information, and guidance and training materials. These activities provide essential feedback and assurances on the overall effectiveness of the programme, and facilitate planning and anticipating future issues.

Lessons learned from reviews, assessments and evaluations: Peer review and advisory missions are in strong demand and show the importance of stable, adequately resourced and effectively independent regulatory systems. The Agency will tailor its approach to the delivery of IRRS and Integrated Review Service for Radioactive Waste and Spent Fuel Management, Decommissioning and Remediation (ARTEMIS) missions to better meet the needs of individual Member States requesting combined or separate missions. Member State support for the Code of Conduct on the Safety and Security of Radioactive Sources, as well as for its supplementary Guidance on the

Import and Export of Radioactive Sources and Guidance on the Management of Disused Radioactive Sources, remains strong. The transport of radioactive material and of nuclear facilities remains of interest to Member States and, consequently, there is a need to retain strong links with other international organizations dealing with transport. The Agency's strategic approach to education and training continues to assist Member States in strengthening radiation and transport safety infrastructure.

Specific criteria for prioritization:

1. Activities that strengthen the global safety framework by establishing safety standards and cooperating with other international organizations that also assist in harmonization and international undertakings.
2. Activities that support Member States in strengthening regulatory infrastructure for radiation and transport safety through peer review and advisory missions.
3. Activities that promote the Code of Conduct on the Safety and Security of Radioactive Sources and assist Member States in strengthening national strategies for sealed source end of life management, in order to avoid orphan sources.

Programmatic Changes and Trends

Subprogramme 3.3.1 Radiation Safety and Monitoring focuses on the provision of assistance to Member States in reaching or maintaining the highest level of radiation safety. In 2022–2023, the Agency will continue to provide for application of *Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards* (IAEA Safety Standards Series No. GSR Part 3), as well as the associated Safety Guides. The Secretariat will continue to advise Member States on enhancing safety in relevant medical procedures, and to assist in the implementation of justification and optimization principles. The Agency will revise or develop new safety guidance on the protection of workers. Efforts will be made to prepare joint documents or position statements, namely on radiation protection from exposure to radon; on the application of the 2012 report of the United Nations Scientific Committee on the Effects of Atomic Radiation and its annexes on attribution of health effects and inference of risk; on radiation protection in the naturally occurring radioactive material (NORM) industry; and on any other subjects jointly agreed.

Subprogramme 3.3.2 Regulatory Infrastructure and Transport Safety will continue to address 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. Recognizing the need to build competence in radiation safety in a sustainable manner, the number of Member States that are developing and implementing their own national strategy based on a national needs analysis in line with IAEA safety standards and guidance is expected to continue to increase. In transport safety, the revision of relevant IAEA safety standards will continue. Upon the request of Member States, of technical assistance recipient countries and of donor countries, the subprogramme, on both regulatory infrastructure and transport safety, will increase coordination and cooperation with the relevant subprogrammes in nuclear security in order to foster the integrated strengthening of national infrastructure for radiation safety and security of radioactive material.

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 by 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 its supplementary guidance, as well as 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**
• An integrated, comprehensive and consistent set of up-to-date safety standards in the area of radiation and transport safety available to Member States.	• Number of relevant new and revised safety standards and supporting documents.

Outcomes	Performance Indicators
• Increased Member State use of Agency services to support radiation and transport safety.	• Number of safety review, appraisal and advisory missions conducted.
• Increased Member State use of Agency methodologies for analysing training needs in the area of radiation and transport safety.	• Number of Member States having conducted an analysis of training and education needs in radiation and transport safety.

Subprogramme 3.3.1 Radiation Safety and Monitoring

Objectives:

— *To support Member States in reaching the highest level of radiation safety through the development of safety standards and guides and by providing for their use in all sectors of industry, medicine and other applications, and also through providing relevant information on the risks and benefits of such applications.*

— *To provide services for 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
• Strengthened cooperation among relevant international organizations with responsibilities and mandates for radiation safety.	• Number of safety standards, other documents and workshops jointly sponsored by members of the Inter-Agency Committee on Radiation Safety (IACRS). • Number of guidance documents (revision of existing documents or development of new documents) to support implementation of the revised GSR Part 3 jointly sponsored by international organizations.
• Increased efficiency and effectiveness of dosimetry systems protecting occupationally exposed workers for Agency staff, and increased Member State capabilities for their application.	• Number of Safety Guides and TECDOCs developed in cooperation with the International Labour Organization in the area of the occupational radiation protection. • Number of accredited methods maintained in the Agency's laboratories.
• Increased Member State use of Agency materials on good practices in medical radiation protection among health professionals and organizations involved in medical radiation exposure.	• Number of page views, including downloads of Agency guidance and other information on methods for improving radiation protection of patients from the Agency's Radiation Protection of Patients website.

Projects

Title	Main Planned Outputs
3.3.1.001 Public and environment radiation protection	New and revised safety standards and guidance documents; meetings and workshops for Member States to support implementation of GSR Part 3 and cooperation with relevant international organizations on radiation safety issues.
3.3.1.002 Radiation protection of patients	Safety related documents on the radiation protection of patients; reporting systems for radiological procedures and radiotherapy; a dedicated website for health professionals and patients containing up-to-date information on dose reduction in radiation exposure in medicine.
3.3.1.003 Occupational radiation protection	New and revised safety documents supporting the safety standards on occupational radiation protection; new or expanded radiation protection optimization networks; operation of the Information System on Occupational Exposure, and promotion and upgrade of the Information System on Occupational Exposure in Medicine, Industry and Research — Industrial Radiography; newly developed and updated training packages, reports and information management system for the Occupational Radiation Protection Appraisal Service; expansion and use of Occupational Radiation Protection Networks.

Title	Main Planned Outputs
3.3.1.004 Radiation safety technical services	Accredited individual dosimetry and workplace monitoring services; instrument calibration services; radiation safety and monitoring assistance in accidents and incidents; novel dosimetry and monitoring methodologies and practices.

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 by 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 competence building.*

Outcomes	Performance Indicators
• 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.	• Number of new and revised safety standards and supporting documents in in the area of transport safety and regulatory infrastructure.
• Increased Member State use of Agency services to support transport safety and regulatory infrastructure in Member States.	• Number of safety review services conducted.
• Increased Member State use of Agency methodologies for analysing training needs in radiation, transport and waste safety.	• Number of Member States having carried out an analysis of training and education needs in radiation, transport and waste safety.

Projects

Title	Main Planned Outputs
3.3.2.001 Regulatory 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 reports; regulatory review services; recommendations to Member States on regulatory aspects.
3.3.2.002 Transport safety	A comprehensive set of transport safety standards, TECDOCs and other guidance, and training courses; Technical Meetings and other consultancy meetings to support the implementation of such guidance.
3.3.2.003 Technical assistance and information management	Updated radiation safety infrastructure profiles in the Radiation Safety Information Management System; reports of the Steering Committee on Education and Training in Radiation, Transport and Waste Safety and of the directors of postgraduate educational courses; a revised and updated approach to education and training in this area; updated training materials for postgraduate educational courses and train the trainer events for radiation protection officers; updated impact analysis of postgraduate educational courses and train the trainer events.

Programme 3.4 Radioactive Waste Management and Environmental Safety

Programme 3.4 provides support to Member States in establishing a safety framework for the management of radioactive waste and nuclear spent fuel, and in planning and implementing safe decommissioning of nuclear installations and other facilities using radioactive material as well as safety in environmental remediation and releases of radioactive material to the environment. This programme includes the development of relevant Agency safety standards, the provision of assistance to Member States in the use and application of these safety standards, coordination of the Waste Safety Standards Committee (WASSC), and the provision of secretariat services for

meetings of the Contracting Parties to the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management (Joint Convention).

Lessons learned from reviews, assessments and evaluations: Disposal is fundamental to the long term safety and security of radioactive waste. Progress is being made in the geological disposal, and experience can already be shared, in particular through assistance provided to Member States and during the conduct of the Agency's international projects (e.g. the International Project on Demonstrating the Safety of Geological Disposal (GEOSAF)). However, guidance on safe practices for longer periods of storage is needed, as geological disposal — although seriously considered by many countries — is not yet widely operational. Lessons identified from past nuclear and radiological accidents (e.g. the Fukushima and Goiânia accidents) and from the Agency project on the management of large amounts of waste, indicate that Member States need plans in place to deal with large and unplanned amounts waste generated in the event of an accident. Decommissioning is increasing worldwide, generating significant amounts of waste that need to be managed, often without a suitable disposal pathway. Member States also need assistance in the remediation of legacy sites or advice on avoiding the creation of new legacies when embarking on uranium mining. The Agency will take into account Member States' views on flexibility in combining IRRS and ARTEMIS missions or implementing them separately. The marine environment remains of interest to Member States, so links with international conventions dealing with the marine environment are important, as is a clear understanding of radioactive materials in and entering the marine environment.

Specific criteria for prioritization:

1. Activities that support Member States in developing national strategies, policies and implementation plans for safety of radioactive waste management, including disposal; decommissioning and remediation of contaminated areas, including legacy sites; and management of NORM residues.
2. Activities that support Member States in mitigating releases of radioactive material to the environment.
3. Activities that support Member States interested in uranium mining to prevent the creation of future legacy sites.

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 high level waste, addressing the development and review of safety cases for both operational and post-closure safety of disposal facilities. The Secretariat, through the continuation of international projects on the safety of geological disposal (e.g. GEOSAF) and also through the offer of corresponding peer review services (e.g. ARTEMIS), will foster exchange and sharing of experience in this domain to the benefit of Member States.

Subprogramme 3.4.2 Safety of Decommissioning, Remediation and Environmental Releases consists of projects addressing the safety of the interrelated elements of decommissioning, remediation and environmental monitoring, and the management and assessment of radioactive releases to the environment, including decommissioning and remediation after a nuclear accident. Efforts will continue towards developing safety standards and guidance and supporting their application by Member States. Decommissioning is expected to increase worldwide as existing facilities reach their end of service or are subject to early closure, 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 geological repositories for high level waste, 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 geological repositories for high level waste, decommissioning, remediation and environmental releases through peer reviews and advisory services; and to assist in their adherence to, and facilitate the implementation of, the Joint Convention.*
— *To support Member States in capacity building through education and training and by encouraging the exchange of information and experience.*

Outcomes	Performance Indicators
• 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 geological), and decommissioning, remediation and environmental releases available to Member States.	• Number of new and revised safety standards and supporting documents in this area.
• Increased Member State use of Agency services to support safety of spent fuel and radioactive waste management, including predisposal, disposal, decommissioning, remediation and environmental releases in Member States, and adherence of Member States to the Joint Convention.	• Number of peer review services or other expert mission support activities with regard to spent fuel and radioactive waste management, including predisposal and disposal as well as decommissioning, remediation and environmental release, conducted for organizations, state authorities and/or facilities. • Number of Contracting Parties to the Joint Convention.
• Increased Member State use of Agency training methodologies in the areas of spent fuel and radioactive waste management, including predisposal and disposal (near surface and geological) as well as decommissioning, remediation and environmental releases.	• Number of Member States participating in Agency training on decommissioning, remediation and environmental releases.

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; and to assist in their adherence to, and facilitate the implementation of, the Joint Convention.*

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

Outcomes	Performance Indicators
• 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 of waste (near surface and geological) available to Member States.	• Number of new and revised safety standards and supporting documents in this area.
• Increased Member State use of Agency services to support the safety of spent fuel and radioactive waste management, including predisposal and disposal of waste (near surface and geological) in Member States, and the adherence of Member States to the Joint Convention.	• Number of peer review services conducted in the area of spent fuel and radioactive waste management, including predisposal and disposal. • Number of Contracting Parties to the Joint Convention.
• Increased Member State use of Agency training methodologies in the areas of spent fuel and radioactive waste management, including predisposal and disposal (near surface and geological).	• Number of Member States participating in Agency training on spent fuel and radioactive waste management, including predisposal and disposal of waste (near surface and geological).

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; provision of secretariat services for the Joint Convention (including organization of Review Meetings); provision of secretariat services for the WASSC.

Title	Main Planned Outputs
3.4.1.002 Application of safety standards and support for inter-comparison projects	Work plans, and periodic and final reports for existing and new projects on the safety of radioactive waste and spent fuel management and organization of peer review missions (ARTEMIS) in Member States.

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, remediation and environmental releases, including post-accident situations, through the development of safety standards and by providing for their application.*
- *To support Member States in improving the safety of their programmes with regard to decommissioning, remediation and environmental releases, including post-accident situations, through peer reviews and advisory services.*
- *To support Member States in capacity building through education and training and by encouraging the exchange of information and experience.*

Outcomes	Performance Indicators
• 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.	• Number of new and revised safety standards and supporting documents in this area.
• Increased Member State use of Agency services to support safety of decommissioning, remediation and environmental releases, including post-accident situations.	• Number of peer review services conducted in the area of decommissioning, remediation and environmental release.
• Increased Member State use of Agency training methodologies in the area of decommissioning, remediation and environmental releases, including post-accident situations.	• Number of Member States participating in Agency training in the area of decommissioning, remediation and environmental releases, including post-accident situations.

Projects

Title	Main Planned Outputs
3.4.2.001 Safety for decommissioning and remediation	IAEA safety standards pertaining to decommissioning, remediation and residue management from uranium production and processing of naturally occurring radioactive material; supporting documents and training materials to assist Member States with the application of these standards.
3.4.2.002 Safety for assessment and management of environmental releases	New and revised safety standards, and new TECDOCs to assist in elaborating examples for the application of safety standards in practice; recommendations to Member States for performing radiological impact assessments and environmental monitoring to enhance nuclear safety.

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. Even though the responsibility for nuclear security within a State rests entirely with that State, Member States have consistently recognized the central role of the Agency in strengthening the nuclear security framework globally and in coordinating international cooperation in nuclear security activities. Much progress has been made in recent years in addressing nuclear security, including via the entry into force of the Amendment to the Convention on the Physical Protection of Nuclear Material in 2016. Efforts will continue to promote the universalization of relevant legally binding instruments and the commitment to non-binding instruments under Agency auspices.

This programme is designed to assist Member States, upon their request, in meeting the requirements of legally binding and non-binding international instruments, and to establish and maintain effective national nuclear security regimes. This programme takes into account the activities set out in the Nuclear Security Plan 2022–2025. Greater emphasis is placed on the publication of comprehensive guidance documents as part of the IAEA 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, ensuring coordination and promotion of international cooperation activities on nuclear security and improving cooperation between the security and safety communities, while avoiding duplication and overlap.

Lessons learned from reviews, assessments and evaluations: 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. The implementation of this 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 nuclear security globally.

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 for assistance, in capacity building, human resource 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 continues to respond to the interest of 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, technical guidance documents and training for the global community. Agency assistance to individual States, upon request, through the development and implementation of INSSPs and self-assessment tools, has increased owing to the international nuclear security community's increased awareness of Agency nuclear security activities.

Subprogramme 3.5.2 Nuclear Security of Materials and Facilities continues to respond to increased demand for the development of practical technical guidance and training on the security of nuclear and other radioactive material and associated facilities, including during transport. The development or enhancement of regulatory infrastructures in nuclear security, nuclear material control and accounting systems at nuclear facilities for security purposes, specific guidance on insider threats, nuclear security culture, and contingency planning continue to be important security elements. A further increase in State requests for technical assistance for risk-reduction activities, advisory services and assessment missions on the physical protection of materials, facilities and activities is also anticipated.

Subprogramme 3.5.3 Nuclear Security of Material outside of Regulatory Control assists States in improving coordination and cooperation between the various State competent authorities and stakeholders dealing with the security of nuclear and other radioactive material out of regulatory control (MORC).

Subprogramme 3.5.4 Programme Development and International Cooperation aims to further strengthen Member State involvement in nuclear security activities by facilitating participation in the development of education and training networks, and, in particular, nuclear security documents through the NSGC.

Objectives, Outcomes and Performance Indicators by Programme

Programme 3.5 Nuclear Security
Objectives:
— *To promote adherence to relevant legally and non-legally binding international instruments to enhance nuclear security globally.*
— *To assist States in establishing, maintaining and sustaining national nuclear security regimes for nuclear and other radioactive materials, including during transport, and associated facilities used for peaceful purposes.*
— *To play the central role of facilitating and enhancing international cooperation and increasing visibility and awareness through communication on nuclear security.*

Outcomes	Performance Indicators
• Increased State commitment to meeting international obligations under relevant international instruments.	• Number of additional States' adherence to the Convention on the Physical Protection of Nuclear Material (CPPNM) and/or its Amendment. • Number of additional States expressing political support to the Code of Conduct on the Safety and Security of Radioactive Sources and/or its supplementary guidance.
• Enhanced capability of States to establish, maintain and sustain a national nuclear security regime by developing comprehensive nuclear security guidance and providing technical assistance (including peer reviews, advisory services and capacity building, including education and training).	• Percentage of State-requested nuclear security assistance activities addressed by the Agency. • Number of States receiving technical assistance for risk reduction through results based nuclear security projects.
• Enhanced coordination and cooperation globally in the delivery of assistance to complement national efforts in the establishment, maintenance and sustainability of nuclear security regimes.	• Number of events jointly organized by the Agency in cooperation with other organizations and donors which addressed coordination of activities in the establishment, maintenance and sustainability of nuclear security regimes.

Subprogramme 3.5.1 Information Management

Objectives:

— *To provide a comprehensive framework for systematically identifying and prioritizing States' nuclear security needs and to support planning and prioritizing the provision of Agency nuclear security assistance to States, as well as to facilitate international cooperation and coordination in meeting Member States' nuclear security needs.*

— *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.*

— *To raise awareness of the threat of cyberattacks, and their potential impact on nuclear security, and to support States in taking effective security measures against such attacks.*

Outcomes	Performance Indicators
• A single reliable, comprehensive and systematic process, consistently used by States to identify and prioritize their nuclear security needs.	• Number of INSSPs under implementation. • Percentage of assistance activities identified through the INSSP process.
• Information is timely shared and high quality analysis of incidents performed through the leveraging of information technology services.	• Percentage of incident reports, received from reporting States, disseminated to participating States within approximately one working day.
• Enhanced 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 participating in Agency activities to improve computer and information security capabilities.

Projects

Title	Main Planned Outputs
3.5.1.001 Assessing nuclear security needs and priorities	Development and implementation of INSSPs, where appropriate; hosting and management of voluntary self-assessment mechanism or tool for States' use.
3.5.1.002 Information sharing on incidents and trafficking	Incident and Trafficking Database (ITDB); incident analysis reports; information exchange meetings; training of appropriate State professionals to improve the effectiveness of information sharing activities implemented through the ITDB.
3.5.1.003 Information and computer security, and information technology services	Information and computer security guidance documents; expert meetings; training courses and workshops; computer security webinars; technical assistance for Member States; coordinated research projects (CRPs).

Subprogramme 3.5.2 Nuclear Security of Materials and Facilities

Objectives:

— *To support States in establishing, or enhancing, maintaining and sustaining their national competences, capacities and capabilities for the security of nuclear and other radioactive material and associated facilities, including during transport.*

Outcomes	Performance Indicators
• Enhanced State competencies to protect nuclear and other radioactive material, including during transport, and associated facilities, through the provision of Agency guidance, expert advice and technical assistance.	• Number of States in which the national regulatory infrastructure was established or enhanced with the support of the Agency. • Number of Agency training events attended by at least ten trainees or by trainees from at least five States, 75% of whom serve in their own country for at least one year following the training.
• Enhanced State capacities and capabilities to reduce risks related to the security of nuclear and other radioactive material, including during transport, and associated facilities through the provision of Agency guidance and technical assistance.	• Number of States in which physical protection measures and systems have been strengthened with the support of the Agency. • Number of States in which the safe and secure management of nuclear and other radioactive material has been enhanced with the support of the Agency.

Projects

Title	Main Planned Outputs
3.5.2.001 Integrated nuclear security approaches	IAEA Nuclear Security Series guidance and other Agency publications; international, regional and national training courses, meetings/workshops and consultancy meetings; expert missions; advisory services; standing technical discussion fora.
3.5.2.002 Enhancing security of nuclear material and associated facilities	IAEA Nuclear Security Series guidance and other Agency publications; international, regional and national training courses; physical protection enhancements; meetings/workshops and consultancy meetings; expert missions; advisory services; standing technical discussion fora.
3.5.2.003 Upgrading security of radioactive material and associated facilities	IAEA Nuclear Security Series guidance, methodologies, meetings/workshops and consultancy meetings; nuclear security services; standing technical discussion fora; international, regional and national training courses; physical protection enhancements; safe and secure management enhancements for radioactive sources.
3.5.2.004 Nuclear security in transportation of nuclear and radioactive material	IAEA Nuclear Security Series guidance and other Agency publications; international, regional and national training courses; exercises, meetings/workshops and consultancy meetings; expert missions; advisory services; standing technical discussion fora.

Subprogramme 3.5.3 Nuclear Security of Material 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 by utilizing nuclear security measures in response to nuclear security events, as well as nuclear security systems and measures for major public events.*

— *To assist States in strengthening and maintaining effective national nuclear security detection architectures, and enhancing and improving capabilities in detecting, locating and interdicting nuclear and other radioactive material out of regulatory control.*

— *To assist States in strengthening their national framework for managing radiological crime scenes, collecting evidence for use in subsequent legal proceedings, and undertaking nuclear forensics examinations to support investigations and help determine the origin and history of the material.*

Outcomes	Performance Indicators
• Increased national capability to establish sustainable and harmonized national nuclear security systems and reaction measure infrastructure within response in a State in order to ensure that national and international obligations are met, including the effective provision of assistance to States hosting major public events in enhancing the implementation of nuclear security measures.	• Number of States where assistance is provided in implementing nuclear security measures at major public events. • Number of activities implemented related to the nuclear security systems and reaction measures infrastructure for managing MORC.
• Enhanced capability and capacity resulting from CRPs and the use of Nuclear Security Series publications to strengthen nuclear security systems and measures for detection of MORC.	• Number of relevant Nuclear Security Series publications, including the Agency non-serial publications, resulting from CRPs. • Number of activities implemented related to detection of materials outside of regulatory control.
• 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 Nuclear Security Series publications, including revisions and the Agency non-serial publications resulting from CRPs. • Number of activities implemented related to radiological crime scene management and nuclear forensics science.

Projects

Title	Main Planned Outputs
3.5.3.001 Institutional response infrastructure for material out of regulatory control	Related Nuclear Security Series guidance; expert missions and the International Nuclear Security Advisory Service (INSServ); projects arising from INSSPs to support States in establishing a national nuclear security response infrastructure, in capacity building and in hosting major public events.
3.5.3.002 Nuclear security detection architecture	Related Nuclear Security Series guidance; expert missions and INSServ; projects arising from INSSPs to support States in establishing and strengthening their capabilities in the detection of MORC; CRPs in the field of detection technology for MORC.
3.5.3.003 Radiological crime scene management and nuclear forensics science	Related Nuclear Security Series guidance; nuclear security training programmes; assessment missions, including INSServ; assistance to States and international, regional and national organizations in strengthening their capacity; CRPs.

Subprogramme 3.5.4 Programme Development and International Cooperation

Objectives:

— *To ensure the coordination and implementation of the Programme 3.5 (Nuclear Security) to address Member States' needs.*

— *To assist in the promotion and strengthening of nuclear security globally, including the production and relevant use of guidance in the Nuclear Security Series and to promote the universalization of the 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), Nuclear Security Support Centres (NSSCs) and the Nuclear Security Information Portal.*

Outcomes	Performance Indicators
• Improved nuclear security regime through the production of current nuclear security guidance involving all Member States and adherence, including effective implementation, to the CPPNM and its Amendment.	• Number of documents produced in the Nuclear Security Series. • Number of States additionally adhering to the CPPNM and/or its Amendment.

Outcomes	Performance Indicators
• Strengthened Member State capacity through the implementation of nuclear security education and training programmes, available to all States, including through the INSEN and NSSC networks.	• Number of States participating in human resource development activities. • Number member institutions in INSEN and NSSC networks.
• Coordinated delivery of Programme 3.5 (Nuclear Security).	• Number of reports to various stakeholders on the implementation of Programme 3.5.

Projects

Title	Main Planned Outputs
3.5.4.001 International cooperation on nuclear security networks and partnerships	Practical arrangements; contribution agreements; agreements on partnership and collaboration centres; Information Exchange Meetings; meetings and workshops related to the CPPNM and its Amendment.
3.5.4.002 Education and training programmes for human resource development	Education and training materials reflecting Agency nuclear security publications, including e-learning and the development of advanced training tools; materials, resources and tools for supporting an integrated approach to human resource development in nuclear security by Member States, including through INSEN and NSSC networks.
3.5.4.003 Coordinating nuclear security guidance and advice services	Related Nuclear Security Series guidance documents.

Major Programme 3 — Nuclear Safety and Security

Summary of Programme Structure and Resources

(excluding Major Capital Investments)

Programme/Subprogramme/Project	2022 at 2022 Prices		2023 at 2022 Prices	
	Regular Budget	Unfunded	Regular Budget	Unfunded
3.0.0.001 Overall management, coordination, communication and common activities	1 324 663	106 664	1 322 971	106 664
3.0.0.002 Capacity building, knowledge networks and partnerships	355 443	2 442 664	313 072	2 442 664
3.0.0.003 Coordination of safety standards and security guidance	258 270	493 657	258 270	493 657
3.0.0.004 Internal control for radiation safety and nuclear security	233 275	132 189	233 275	132 189
3.S Corporate shared services	1 961 767	46 127	1 961 767	49 778
	4 133 419	**3 221 302**	**4 089 355**	**3 224 953**
3.1.1.001 Member State emergency preparedness	1 576 987	1 735 455	1 571 834	1 671 574
3.1.1.002 International emergency management	260 125	13 058	265 279	13 058
3.1.1 National and International Emergency Preparedness	1 837 112	1 748 513	1 837 113	1 684 632
3.1.2.001 Preparedness of the Incident and Emergency System	1 039 528	168 528	1 039 528	168 528
3.1.2.002 Response and assistance arrangements with Member States and international organizations	1 171 945	376 206	1 171 738	260 490
3.1.2.003 Public communication in emergencies	573 043	123 918	568 515	119 543
3.1.2 IAEA IES and Operational Arrangements with Member States and International Organizations	2 784 516	668 652	2 779 781	548 561
3.1 Incident and Emergency Preparedness and Response	**4 621 628**	**2 417 165**	**4 616 894**	**2 233 193**
3.2.1.001 Regulatory effectiveness and safety infrastructure for new programmes	1 861 689	3 135 617	1 758 646	2 769 551
3.2.1.002 Safety standards and CNS promotion/support	1 087 534	97 609	1 482 641	97 609
3.2.1.003 Capacity building for installations safety and regulatory functions	334 200	175 456	320 744	172 268
3.2.1 Governmental Regulatory Framework and Safety Infrastructure Development	3 283 423	3 408 682	3 562 031	3 039 427
3.2.2.001 Design safety of existing, evolutionary, and innovative power reactors	1 421 328	256 576	1 349 336	217 276
3.2.2.002 Development and application of safety assessment methods	930 136	787 271	907 803	735 743
3.2.2 Safety Assessment of Nuclear Installations	2 351 464	1 043 847	2 257 139	953 019
3.2.3.001 Site evaluation and installation design safety	733 281	19 042	683 177	-
3.2.3.002 Site evaluation methods and tools for installation safety assessment	468 998	1 320 124	461 891	1 310 455
3.2.3 Safety and Protection Against External Hazards	1 202 278	1 339 166	1 145 068	1 310 455
3.2.4.001 Operational safety performance	981 405	1 018 584	948 314	1 093 416
3.2.4.002 Sharing and use of international operating experience	912 301	170 212	911 758	179 007
3.2.4.003 Leadership and management for safety and safety culture in Member States	431 160	110 593	400 580	106 567
3.2.4.004 Safety of long term operation	430 236	706 357	388 949	669 963
3.2.4 Safe Operation of Nuclear Power Plants	2 755 102	2 005 746	2 649 600	2 048 953
3.2.5.001 Safety of research reactors	958 329	187 954	915 494	193 722
3.2.5.002 Safety of fuel cycle facilities	542 455	53 030	530 778	38 854
3.2.5 Safety of Research Reactor and Fuel Cycle Facilities	1 500 784	240 984	1 446 272	232 576
3.2 Safety of Nuclear Installations	**11 093 052**	**8 038 424**	**11 060 110**	**7 584 431**

Major Programme 3 — Nuclear Safety and Security

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

	2022 at 2022 Prices		2023 at 2022 Prices	
Programme/Subprogramme/Project	**Regular Budget**	**Unfunded**	**Regular Budget**	**Unfunded**
3.3.1.001 Public and environment radiation protection	1 140 496	679 929	1 133 266	682 141
3.3.1.002 Radiation protection of patients	875 637	17 132	868 868	17 132
3.3.1.003 Occupational radiation protection	652 686	123 796	666 264	123 796
3.3.1.004 Radiation safety technical services	1 962 670	296 020	1 902 592	296 020
3.3.1 Radiation Safety and Monitoring	4 631 489	1 116 878	4 570 990	1 119 090
3.3.2.001 Regulatory control of radiation sources	1 034 661	961 259	1 203 304	756 749
3.3.2.002 Transport safety	984 607	127 223	979 072	127 223
3.3.2.003 Technical assistance and information management	1 270 664	66 608	1 182 164	112 658
3.3.2 Regulatory Infrastructure and Transport Safety	3 289 932	1 155 090	3 364 540	996 630
3.3 Radiation and Transport Safety	**7 921 421**	**2 271 968**	**7 935 531**	**2 115 720**
3.4.1.001 Waste management safety standards and Joint Convention support	1 008 949	292 207	1 007 630	292 207
3.4.1.002 Application of safety standards and support for inter-comparison projects	837 179	543 664	820 988	554 648
3.4.1 Safety of Spent Fuel and Radioactive Waste Management	1 846 127	835 871	1 828 618	846 855
3.4.2.001 Safety for decommissioning and remediation	1 291 615	684 724	1 266 658	664 259
3.4.2.002 Safety for assessment and management of environmental releases	859 264	341 994	883 223	303 238
3.4.2 Safety of Decommissioning, Remediation and Environmental Releases	2 150 878	1 026 718	2 149 881	967 498
3.4 Radioactive Waste Management and Environmental Safety	**3 997 006**	**1 862 590**	**3 978 499**	**1 814 352**
3.5.1.001 Assessing nuclear security needs and priorities	533 027	1 577 137	533 027	1 577 137
3.5.1.002 Information sharing on incidents and trafficking	168 832	463 173	57 339	463 173
3.5.1.003 Information and computer security, and information technology services	779 561	2 212 117	779 561	2 212 117
3.5.1 Information Management	1 481 420	4 252 427	1 369 927	4 252 427
3.5.2.001 Integrated nuclear security approaches	723 803	6 050 857	708 268	6 383 616
3.5.2.002 Enhancing security of nuclear material and associated facilities	442 064	1 956 852	442 064	1 956 852
3.5.2.003 Upgrading security of radioactive material and associated facilities	382 480	4 103 539	382 480	4 103 539
3.5.2.004 Nuclear security in transportation of nuclear and radioactive material	340 335	1 033 504	340 335	1 033 504
3.5.2 Nuclear Security of Materials and Facilities	1 888 681	13 144 752	1 873 146	13 477 511
3.5.3.001 Institutional response infrastructure for material out of regulatory control	701 564	445 030	701 564	445 030
3.5.3.002 Nuclear security detection architecture	574 076	4 583 937	596 107	4 560 364
3.5.3.003 Radiological crime scene management and nuclear forensics science	377 817	1 794 193	377 817	1 794 193
3.5.3 Nuclear Security of Material outside of Regulatory Control	1 653 456	6 823 161	1 675 488	6 799 587
3.5.4.001 International cooperation on nuclear security networks and partnerships	770 856	2 092 061	770 856	2 092 061
3.5.4.002 Education and training programmes for human resource development	454 524	1 989 993	454 524	1 989 993
3.5.4.003 Coordinating nuclear security guidance and advice services	307 751	371 356	498 881	371 356
3.5.4 Programme Development and International Cooperation	1 533 131	4 453 410	1 724 262	4 453 410
3.5 Nuclear Security	**6 556 689**	**28 673 750**	**6 642 823**	**28 982 935**
Major Programme 3 - Nuclear Safety and Security	**38 323 213**	**46 485 198**	**38 323 213**	**45 955 583**

Major Programme 3 — Nuclear Safety and Security

Activities unfunded in the Regular Budget

(excluding Major Capital Investments)

Project	Tasks	2022 Unfunded	2023 Unfunded
3.0.0.001 Overall management, coordination, communication and common activities	Enhancement of effectiveness and efficiency of peer review and advisory services	106 664	106 664
3.0.0.002 Capacity building, knowledge networks and partnerships	Activities on capacity building, knowledge management, networks and partnerships	2 442 664	2 442 664
3.0.0.003 Coordination of safety standards and security guidance	Development and maintenance of processes and tools for safety standards and security guidance	493 657	493 657
3.0.0.004 Internal control for radiation safety and nuclear security	Activities to ensure that IAEA safety standards and nuclear security guidance are consistently applied in the Agency laboratories and operations involving exposure to ionizing radiation in accordance with article III.A.6 of the IAEA statute	132 189	132 189
3.1.1.001 Member State emergency preparedness	Assistance to Member States in building, maintaining and enhancing their EPR arrangements by: providing capacity building services; developing knowledge sharing tools; conducting peer review services; and supporting Capacity Building Centres in EPR	1 735 455	1 671 574
3.1.1.002 International emergency management	Training in international emergency management and inter-agency EPR arrangements	13 058	13 058
3.1.2.001 Preparedness of the Incident and Emergency System	Maintenance and improvement of the IEC's response arrangements, infrastructure and relevant software solutions	168 528	168 528
3.1.2.002 Response and assistance arrangements with Member States and international organizations	Response to emergencies and enhancement of international response arrangements	376 206	260 490
	Enhancement of international assistance arrangements		
	Enhancement of information exchange supporting the assessment and prognosis process		
3.1.2.003 Public communication in emergencies	Development of guidance and training tools for public communication in nuclear or radiological emergencies for Member States and the Secretariat	123 918	119 543
3.2.1.001 Regulatory effectiveness and safety infrastructure for new programmes	Support to implementation of the nuclear safety infrastructure based on SSG-16 for Member States embarking on a new nuclear power programme	3 135 617	2 769 551
	Development, review and revision of safety standards and related documents on governmental and regulatory frameworks for nuclear installations		
	Support to application of legal and non-binding instruments in the regulatory bodies and fostering international cooperation, coordination and information exchange activities in the regulatory area		
	Enhancement of the Integrated Regulatory Review Services (IRRS) and assistance to Member States in the implementation of recommendations		
	Development of approaches, methodologies and criteria for determining the technical basis for emergency planning zone for Small Modular Reactor Deployment (CRP)		
3.2.1.002 Safety standards and CNS promotion/support	Support to CNS review meetings of the contracting parties, including maintenance of the CNS secure website	97 609	97 609
3.2.1.003 Capacity building for installations safety and regulatory functions	Support to regulatory training networks and implementing the E&T review and advisory services	175 456	172 268
3.2.2.001 Design safety of existing, evolutionary, and innovative power reactors	Development and review of safety standards and associated documents	256 576	217 276
	Support and implement Technical Safety Review (TSR) Peer Reviews		
	International cooperation and information exchange		

Major Programme 3 — Nuclear Safety and Security
Activities unfunded in the Regular Budget
(excluding Major Capital Investments)

Project	Tasks	2022 Unfunded	2023 Unfunded
3.2.2.002 Development and application of safety assessment methods	Development and review of safety standards and associated documents	787 271	735 743
	Update and implementation of safety assessment competency building programmes		
	Conducting a Coordinated Research Project to develop a phenomena identification and ranking table (PIRT) and a validation matrix, and perform a benchmark for In-Vessel Melt Retention		
3.2.3.001 Site evaluation and installation design safety	Conducting SEED review service missions and assisting Member States in implementing their recommendations	19 042	-
3.2.3.002 Site evaluation methods and tools for installation safety assessment	Development and revision of supporting documents with technical methods and tools required for implementing safety standards of site evaluation and safety assessment	1 320 124	1 310 455
	Development of capacity of embarking countries in conducting safety analysis of nuclear installations in light of site evaluation, site-related safety assessments, design and risk reduction		
3.2.4.001 Operational safety performance	Development, review and revision of safety standards and supporting documents on operational safety of NPPs	1 018 584	1 093 416
	Conducting Operational Safety Review Team (OSART) missions and assistance to Member States in implementation of the findings		
	Support to international cooperation and information exchange		
3.2.4.002 Sharing and use of international operating experience	Development, review and revision of safety standards and supporting documents on operating experience and continuous performance improvement	170 212	179 007
	Conducting operating experience programme review (PROSPER) and assistance to Member States in the implementation of the recommendations		
	Sharing and use of international operating experience		
3.2.4.003 Leadership and management for safety and safety culture in Member States	Conducting missions and advisory services for Leadership, Management for Safety and Safety Culture and assisting Member States in implementing the recommendations	110 593	106 567
3.2.4.004 Safety of long term operation	Conducting Safety Aspects of Long Term Operation (SALTO) peer review service and assistance to Member States in preparation for safe Long Term Operation	706 357	669 963
	Conducting International Generic Ageing Lessons Learned (IGALL) programme and fostering international exchange of information and knowledge sharing on Ageing Management and Long Term Operation of nuclear power plants		
3.2.5.001 Safety of research reactors	Support to capacity building for research reactor safety infrastructure	187 954	193 722
	Conducting safety review and advisory services missions and assisting Member States in implementing the recommendations		
3.2.5.002 Safety of fuel cycle facilities	Support to capacity building for fuel cycle facilities' safety infrastructure	53 030	38 854
	Conducting safety review and advisory services missions and assisting Member States in implementing the recommendations		
3.3.1.001 Public and environment radiation protection	Provision of assistance to Member States in application of safety standards	679 929	682 141
3.3.1.002 Radiation protection of patients	Radiation protection and safety in medical uses of ionizing radiation	17 132	17 132

Major Programme 3 — Nuclear Safety and Security

Activities unfunded in the Regular Budget

(excluding Major Capital Investments)

Project	Tasks	2022 Unfunded	2023 Unfunded
3.3.1.003 Occupational radiation protection	Operation of the Information System on Occupational Exposure (ISOE) system jointly with OECD/NEA	123 796	123 796
3.3.1.004 Radiation safety technical services	Implementation of accredited individual monitoring services for the Agency staff and workers participating in the Agency operations	296 020	296 020
3.3.2.001 Regulatory control of radiation sources	Organization of the Code of Conduct open ended meetings to share experience on its implementation by Member States	961 259	756 749
3.3.2.002 Transport safety	Assisting Member States in establishing and strengthening national regulatory infrastructures for facilities and activities using radiation sources	127 223	127 223
3.3.2.003 Technical assistance and information management	Support to international cooperation and information exchange	66 608	112 658
	Development, review and revision of safety standards and supporting documents		
	Maintenance of radiation safety profiles of recipient Member States in RASIMS		
3.4.1.001 Waste management safety standards and Joint Convention support	Assistance to Member States in development and implementation of a national strategy for education and training in radiation, transport and waste safety	292 207	292 207
3.4.1.002 Application of safety standards and support for intercomparison projects	Conducting review and advisory missions to strengthen radiation safety infrastructure	543 664	554 648
3.4.2.001 Safety for decommissioning and remediation	Coordination of Waste Safety Standards Committee and providing the secretariat for the Joint Convention	684 724	664 259
3.4.2.002 Safety for assessment and management of environmental releases	Assistance to Member States in the application of safety standards	341 994	303 238
3.5.1.001 Assessing nuclear security needs and priorities	Support to the implementation of the Nuclear Security Plan 2022-2025	1 577 137	1 577 137
3.5.1.002 Information sharing on incidents and trafficking	Support to the implementation of the Nuclear Security Plan 2022-2025	463 173	463 173
3.5.1.003 Information and computer security, and information technology services	Support to the implementation of the Nuclear Security Plan 2022-2025	2 212 117	2 212 117
3.5.2.001 Integrated nuclear security approaches	Support to the implementation of the Nuclear Security Plan 2022-2025	6 050 857	6 383 616
3.5.2.002 Enhancing security of nuclear material and associated facilities	Support to the implementation of the Nuclear Security Plan 2022-2025	1 956 852	1 956 852
3.5.2.003 Upgrading security of radioactive material and associated facilities	Support to the implementation of the Nuclear Security Plan 2022-2025	4 103 539	4 103 539
3.5.2.004 Nuclear security in transportation of nuclear and radioactive material	Support to the implementation of the Nuclear Security Plan 2022-2025	1 033 504	1 033 504
3.5.3.001 Institutional response infrastructure for material out of regulatory control	Support to the implementation of the Nuclear Security Plan 2022-2025	445 030	445 030
3.5.3.002 Nuclear security detection architecture	Support to the implementation of the Nuclear Security Plan 2022-2025	4 583 937	4 560 364
3.5.3.003 Radiological crime scene management and nuclear forensics science	Support to the implementation of the Nuclear Security Plan 2022-2025	1 794 193	1 794 193
3.5.4.001 International cooperation on nuclear security networks and partnerships	Support to the implementation of the Nuclear Security Plan 2022-2025	2 092 061	2 092 061
3.5.4.002 Education and training programmes for human resource development	Support to the implementation of the Nuclear Security Plan 2022-2025	1 989 993	1 989 993
3.5.4.003 Coordinating nuclear security guidance and advice services	Support to the implementation of the Nuclear Security Plan 2022-2025	371 356	371 356
3.S Corporate shared services	Corporate shared services	46 127	49 778
Grand Total		**46 485 198**	**45 955 583**

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, such as the collection and evaluation of safeguards relevant information; the development of safeguards approaches; and the planning, conduct and evaluation of safeguards activities, including the installation of safeguards instrumentation, in-field verification activities 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 2022–2023 period, the main challenges for Major Programme 4 include:

- Meeting increasing safeguards responsibilities effectively and efficiently;
- Enhancing business continuity and disaster recovery capabilities to respond to large-scale external events, such as pandemics, in order to ensure that critical safeguards verification activities are carried out without interruption, including through the strengthening of the Agency's existing regional offices;
- Implementing the necessary verification and monitoring of the nuclear-related commitments of the Islamic Republic of Iran (Iran), as set out in the Joint Comprehensive Plan of Action (JCPOA), in light of United Nations Security Council resolution 2231 (2015);
- Preparing to safeguard new types of nuclear facilities and more complex or larger-scale nuclear facilities, such as the Mixed Oxide Fuel Fabrication Plant (J-MOX) in Japan, and the encapsulation plant and geological repository (EPGR) in Finland and Sweden, including through securing sources of financing;
- Planning for and conducting verification activities at an increasing number of nuclear facilities that are being decommissioned;
- Addressing areas of difficulty in safeguards implementation, including by providing additional support to State systems of accounting for and control of nuclear material (SSACs) through the Agency's Comprehensive Capacity-Building Initiative (COMPASS);
- Strengthening the effectiveness and improving the efficiency of the Agency's safeguards by facilitating the conclusion of comprehensive safeguards agreements (CSAs) and additional protocols (APs);
- Promoting the rigorous implementation of the 2005 Board of Governors decisions regarding small quantities protocols based on the original standard text, with the aim of enabling the States concerned to amend or rescind such protocols, as applicable;
- Intensifying the Agency's readiness to play its essential role, in accordance with its mandate, in monitoring and verifying the nuclear programme of the Democratic People's Republic of Korea (DPRK);
- Ensuring the availability of a safeguards workforce with the necessary skills and expertise to enhance cost-effectiveness, and maintaining critical institutional knowledge;
- Maintaining and enhancing the modernized information technology (IT) infrastructure, including the technical systems, services and instrumentation that underpin effective and efficient safeguards implementation and provide for, inter alia, the highest standards of information security;
- Securing predictable sources of funding in order to continue delivering high-quality safeguards services and implementing effective safeguards in States, including funding for the safeguards equipment necessary to implement effective and efficient safeguards approaches, and encouraging Member States and outside donors to provide co-funding or in-kind contributions to support the implementation of relevant activities, as appropriate; and
- 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 regarding States' fulfilment of their safeguards obligations.	• Percentage of States for which an annual implementation plan has been developed and executed. • Percentage of anomalies resolved in a timely manner.
• Timely response to requests by States to carry out verification tasks approved by the Board of Governors.	• Percentage of approved verification tasks carried out in a timely manner.
Projects	
Title	**Main Planned Outputs**
4.0.0.001 Overall management and coordination	Inputs for reports of the Director General to the Policy-Making Organs; communication plans on safeguards priorities; dialogue with States on safeguards implementation matters; engagement activities with States and other stakeholders; contribution to the Agency's Annual Report; Department of Safeguards senior management meetings; safeguards human resources strategy (e.g. staffing, recruitment, gender equality and the associated plan); coordination of planning, monitoring and reporting on results.
4.0.0.002 Safeguards effectiveness evaluation	Safeguards Implementation Report (SIR) and other safeguards reports to the Policy-Making Organs; internal reports on performance monitoring and independent reviews of annual implementation plans, State evaluation reports (SERs) and safeguards approaches.

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. These 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 verification activities in relevant locations in States; the collection, processing and analysis of safeguards relevant information; the provision, development, standardization and maintenance of safeguards equipment; the analysis of nuclear material and environmental samples; the continued 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, assessments and evaluations: An advanced technology framework including business continuity measures is a strategic enabler for safeguards implementation, as demonstrated, for example, during the COVID-19 pandemic, and needs to be continuously supported. Other major lessons learned from the COVID-19 pandemic situation include the demonstrated critical role of remote data transmission and work of the Agency's regional offices to sustain its safeguards capabilities. Securing sufficient long term funding to replace and maintain safeguards equipment is addressed though the recently established Integrated Life Cycle Management of Safeguards Assets (ILSA) project. Further efforts are focused on the evaluation and improvement of State technical capabilities and of State and regional systems of accounting for and control of nuclear material. A standardized methodology for State-level safeguards approaches (SLAs) will allow for a better evaluation of the effectiveness of safeguards implementation at the State level and has already provided greater consistency in safeguards implementation.

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 will continue to be dedicated to high-priority operational support activities that are critical to ensuring that the Agency's safeguards obligations can be carried out effectively, efficiently and consistently.

Subprogramme 4.1.2 Safeguards Implementation for States under the Responsibility of Division SGOA will continue to implement safeguards for States under its responsibility without substantive programmatic changes as compared with the previous biennium.

Subprogramme 4.1.3 Safeguards Implementation for States under the Responsibility of Division SGOB will continue to implement safeguards for States under its responsibility without substantive programmatic changes as compared with the previous biennium. Safeguards activities in the Islamic Republic of Iran under the CSA and the AP (provisionally applied) conducted by the Office for Verification in Iran will continue under this subprogramme.

Subprogramme 4.1.4 Safeguards Implementation for States under the Responsibility of Division SGOC will continue to implement safeguards for States under its responsibility without substantive programmatic changes as compared with the previous biennium.

Subprogramme 4.1.5 Information Analysis continues to include all projects dedicated to ongoing safeguards relevant information collection, advanced technical expert evaluations, processing and analysis of all safeguards relevant information required to draw soundly based safeguards conclusions from mandatory verification activities. It also includes the development of relevant methodologies, related analytical tools for experts and analytical processes.

Subprogramme 4.1.6 Provision and Development of Safeguards Instrumentation continues to cover all Departmental activities related to the development, provision, maintenance and asset inventory of safeguards equipment and instrumentation.

Subprogramme 4.1.7 Analytical Services will continue to provide analytical services, in collaboration with the Network of Analytical Laboratories (NWAL).

Subprogramme 4.1.8 Special Projects includes planned activities related to J-MOX in Japan and the EPGR in Finland and Sweden, which are progressing according to schedule in the respective States. The project to develop and implement a safeguards approach for the transfer of spent fuel from nuclear power plants to the Central Spent Fuel Storage Facility in Ukraine has reached the stage where major activities should be completed by the end of 2021. The project is therefore no longer included under this subprogramme. The workload related to the inspections, remote monitoring and other follow-up activities will continue under Subprogramme 4.1.4. The Integrated Life Cycle Management of Safeguards Assets (ILSA) project, which aims to ensure the optimum management of assets and associated financial resources, is now included under this subprogramme.

Subprogramme 4.1.9 Safeguards Information and Communication Technology (ICT) includes the set of activities related to the safeguards centre of competence for the specification, development, improvement and maintenance of safeguards information and communication technology (ICT) systems and for the management of all safeguards ICT infrastructure. Following rapidly evolving needs and trends, from digitalization to collaborative environments with enhanced data analysis capabilities, this subprogramme will ensure that specific safeguards ICT systems continue to be available.

Objectives, Outcomes and Performance Indicators by Programme

Programme 4.1 Safeguards Implementation	
Objectives:	
— *To verify States' undertakings under their respective safeguards agreements with the Agency.* — *To support safeguards implementation effectively and efficiently.*	
Outcomes	**Performance Indicators**
• Soundly based safeguards conclusions regarding States' fulfilment of their safeguards obligations.	• Percentage of States for which an annual implementation plan has been developed and executed. • Percentage of anomalies resolved in a timely manner.
• Enhanced cooperation in safeguards implementation between State and/or regional authorities and the Agency.	• Percentage of States and regional authorities engaged in Agency activities, including through assistance and training supporting safeguards implementation. • Percentage of States and regional authorities that have submitted timely declarations and nuclear material accounting reports.
• Effective and efficient safeguards implementation.	• Percentage of safeguards activities supported by effective and efficient implementation of safeguards approaches, processes and procedures, including information and physical security, business continuity and disaster recovery. • Percentage of safeguards activities utilizing advanced tools, methodologies and technologies.

Subprogramme 4.1.1 Concepts and Planning	
Objectives:	
— *To support safeguards implementation by ensuring that resources from Member State Support Programmes (MSSPs) and other partners are focused on meeting high-priority needs.* — *To support the effective, efficient and consistent implementation of State-level safeguards by developing and maintaining Departmental methodologies, policies, procedures, approaches and guidance, including with regard to addressing emerging safeguards challenges and risks.* — *To provide the tools and support for continuous improvement of Departmental processes by effectively maintaining the Department's quality management system.* — *To strengthen safeguards knowledge, skills and abilities within the Department of Safeguards and in States, through effective and innovative safeguards training and learning opportunities.*	
Outcomes	**Performance Indicators**
• Clearly identified priorities and preparedness for the future, and well-coordinated MSSP support.	• Percentage of all development priorities supported by the development and implementation support (D&IS) activities of MSSPs.
• Up-to-date internal processes and documentation to support effective, efficient and consistent safeguards implementation.	• Number of senior management review meetings held. • 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 States, to perform and support safeguards implementation.	• Percentage of safeguards training courses carried out, as identified in the annual safeguards staff training programme. • Percentage of participants from SSACs who have indicated or demonstrated increased knowledge and/or skills as a result of training.

Projects	
Title	**Main Planned Outputs**
4.1.1.001 Strategic planning and coordination	Internal strategic plan, research and development plan, and biennial D&IS programme; MSSP coordination technical meetings with, and guidance to, States on safeguards implementation.
4.1.1.002 Safeguards approaches and concepts	Internal procedures and guidance to support operations and technical Divisions in the consistent development of safeguards approaches, including analyses of implementation issues and associated risks; safeguards for new facility designs and types, and decommissioning and waste management activities; analysis of, and preparedness for, emerging safeguards challenges; Standing Advisory Group for Safeguards Implementation (SAGSI) reports to the Director General.
4.1.1.003 Process design and quality management	Controlled documented information; process governance and design; an implemented and improved Departmental quality management system; training on quality management principles and tools; internal quality audit and assessment programme.
4.1.1.004 Safeguards staff training and traineeship	Training needs analysis; training programme; evaluation guides and mechanisms; training courses for staff; reports and assessment of training courses; teaching materials and training tools.
4.1.1.005 Training and assistance to SSACs	SSAC training programme; online and in-person courses for SSACs; training and learning aids, materials and guides; IAEA State System of Accounting for and Control of Nuclear Material Advisory Service mission reports.

Subprogramme 4.1.2 Safeguards Implementation for States under the 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 voluntary offer agreements (VOAs) remains in peaceful activities unless withdrawn as provided for in the agreements.*	
Outcomes	**Performance Indicators**
• Effective verification activities performed in the field.	• Percentage of satisfactory statements on the activities, results and conclusions of the Agency's in-field activities.
• Evaluation of safeguards relevant information for all States.	• Percentage of States with safeguards agreements in force for which an SER has been produced and reviewed.
Projects	
Title	**Main Planned Outputs**
4.1.2.001 Verification for States with a CSA and an AP in force	SERs; SLAs[1]; annual implementation plans; design information verification (DIV) plans; safeguards approaches and inspection procedures; statements and documentation on activities, results and conclusions of inspections, complementary access (CA) and DIVs.
4.1.2.002 Verification for States with a CSA in force	SERs; SLAs[2]; annual implementation plans; DIV plans; safeguards approaches and inspection procedures; statements and documentation on activities, results and conclusions of inspections and DIVs.

[1, 2] It is noted that the development and implementation of State-Level approaches is to be carried out in close consultation and coordination with the State and/or regional authority and includes agreement by the State concerned on practical arrangements related to the implementation of safeguards measures identified for use in the field if not already in place.

Title	Main Planned Outputs
4.1.2.003 Verification for States with a VOA and an AP in force	SERs; annual implementation plans; DIV plans; safeguards approaches and inspection procedures; 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 all 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 INFCIRC/66-type safeguards agreements 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
● Effective verification activities performed in the field.	● Percentage of satisfactory statements on the activities, results and conclusions of the Agency's in-field activities.
● Evaluation of safeguards relevant information for all States.	● Percentage of States with safeguards agreements in force for which an SER has been produced and reviewed.

Projects

Title	Main Planned Outputs
4.1.3.001 Verification for States with a CSA and an AP in force	SERs; SLAs[3]; annual implementation plans; DIV plans; safeguards approaches and inspection procedures; statements and documentation on activities, results and conclusions of inspections, CAs and DIVs.
4.1.3.002 Verification for States with a CSA in force	SERs; SLAs[4]; annual implementation plans; DIV plans; safeguards approaches and inspection procedures; statements and documentation on activities, results and conclusions of inspections and DIVs.
4.1.3.003 Verification for States with an INFCIRC/66-type agreement in force	SERs; annual implementation plans; safeguards approaches and inspection procedures; statements and documentation on activities, results and conclusions of inspections.
4.1.3.004 Verification for States with a VOA and an AP in force	SERs; annual implementation plans; DIV plans; safeguards approaches and inspection procedures; statements and documentation on activities, results and conclusions of inspections, CAs (as applicable) and DIVs.
4.1.3.005 Verification for Iran (CSA (in force) and AP (provisionally applied))	SER; acquisition path analysis; SLA[5]; annual implementation plan; DIV plans; safeguards approaches and inspection procedures; statements and documentation on activities, results and conclusions of inspections, CAs and DIVs.

Subprogramme 4.1.4 Safeguards Implementation for States under the 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.*

[3, 4, 5] See footnote 1 on page 143.

Outcomes	Performance Indicators
• Effective verification activities performed in the field.	• Percentage of satisfactory statements on the activities, results and conclusions of the Agency's in-field activities.
• Evaluation of safeguards relevant information for all States.	• Percentage of States with safeguards agreements in force for which an SER has been produced and reviewed.

Projects

Title	Main Planned Outputs
4.1.4.001 Verification for States with a CSA and an AP in force	SERs; SLAs[6]; 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 a CSA in force	SERs; SLAs[7]; 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 a VOA and an AP in force	SERs; 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, processing, evaluating, analysing, structuring, securing and disseminating necessary information in a timely manner.*

Outcomes	Performance Indicators
• Enhanced verification effectiveness and soundness of safeguards conclusions through the provision of safeguards 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.
• Timely availability of information and competence contributing to Departmental collaborative processes (State evaluation and implementation of in-field activities).	• Percentage of information available on time to meet State evaluation schedules.
• Necessary methodologies, approaches, processes, tools and procedures in place.	• Percentage of information management 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 the SIR; improved methodologies; training support for SSACs.
4.1.5.002 Nuclear fuel cycle information analysis	Evaluation reports on in-field measurement and sample results and estimation of their uncertainties; developed probabilistic verification schemes; documented evaluation methodologies and IT solutions; training and consultancy meetings; extensive contribution to in-field activities and safeguards implementation (e.g. reports, ad-hoc written or verbal feedback, sampling plans and random inspection schemes).

[6, 7] See footnote 1 on page 143.

Title	Main Planned Outputs
4.1.5.003 State infrastructure analysis	Analytical reports using commercially available satellite imagery and other sources providing geo-referenced information; analytical reports on advanced fuel cycle issues; contributions to State evaluation and in-field activities.
4.1.5.004 Information collection and analysis	Analytical reports using open-source information and commercially available databases; analytical reports based on information on nuclear procurement activities; contributions to State evaluation and in-field activities (e.g. reports, replies to questions and meeting participation).

Subprogramme 4.1.6 Provision and Development 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 ensure the safety of Department of Safeguards staff through properly organized equipment flow, contamination checking and decontamination measures, as well as the provision of personal protective equipment (PPE).*
- *To develop innovative approaches and upgrades in safeguards technologies, to evaluate the application of new technologies for the detection of undeclared nuclear material and activities, and to ensure synergy between safeguards equipment development and innovations originating from other technical areas.*
- *To maintain and enhance a system of asset inventory and operational equipment tracking compliant with International Public Sector Accounting Standards (IPSAS), and 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. • Equipment performance rate of safeguards instruments.
• Increased use of improved technologies enabling safeguards implementation.	• Number of new and upgraded instruments, components and systems authorized for inspection use.
• Asset inventory compliant with IPSAS and occupational safety and radiation regulations.	• Ratio of equipment with incomplete tracking information compared to the overall equipment pool at the Agency's Headquarters and the Safeguards Analytical Laboratories. • Percentage of items received from the field that are scanned for contamination.

Projects

Title	Main Planned Outputs
4.1.6.001 Portable and resident non-destructive assay equipment	Portable and resident non-destructive assay (NDA) instruments provided to inspectors; field support by relevant experts and in-house expertise for the development of NDA instrumentation.
4.1.6.002 Unattended safeguards instrumentation	Surveillance and unattended monitoring systems prepared, installed and tested; field support to inspectors; in-house data review and analysis support.
4.1.6.003 Equipment logistics and storage	Inventory reports; equipment performance reports; shipment reports; Division of Technical and Scientific Services safety reports; safeguards equipment received and checked for contamination; passive seals verified; inspection and PPE items delivered; equipment stored.

Title	Main Planned Outputs
4.1.6.004 Systems integration and coordination	Seals and containment systems installed at safeguarded nuclear facilities worldwide; remote monitoring systems prepared, installed and maintained, and remote monitoring data obtained and processed; equipment documentation and authorization records; engineering solutions for complex systems.
4.1.6.005 Development of equipment components and stand-alone instruments	New and upgraded instruments and components available; documented studies on new promising technologies.
4.1.6.006 Development of instrumentation systems and methodology	Innovative solutions addressing gaps in the technologies currently in use for safeguards and laboratory activities; innovative methodologies used for identifying, testing, developing and deploying innovative solutions supporting safeguards scientific development activities.

Subprogramme 4.1.7 Analytical Services

Objectives:

- *To maintain and improve capabilities, capacity and services for destructive analysis of nuclear material samples 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 timeframes.

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 Special Projects

Objectives:

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

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

Projects	
Title	**Main Planned Outputs**
4.1.8.001 Develop and implement a safeguards approach for J-MOX	Project plan and schedule updated in line with construction plan; development of a safeguards approach and related equipment and documentation as required
4.1.8.002 Integrated Life Cycle Management of Safeguards Assets (ILSA)	Asset management strategy; documented financial transactions.

Subprogramme 4.1.9 Safeguards Information and Communication Technology (ICT)	
Objectives:	
— *To enhance the Department of Safeguards' evolving processes and to continue enabling the Department to deliver on its mandate by providing reliable, efficient and secure ICT infrastructure and solutions, and user support services.* — *To ensure the security of safeguards information, physical security, business continuity and disaster recovery.*	
Outcomes	**Performance Indicators**
• Effective and efficient delivery of ICT projects to address safeguards business requirements.	• Percentage of completed product/project road map items compared to what was planned to fulfil business requirements. • Satisfaction rate of internal stakeholders of the Department of Safeguards ICT solutions.
• Effectively managed operational processes providing secure and highly available ICT infrastructure with strong user support.	• Availability of core ICT communication infrastructure among all Department of Safeguards staff, and availability of ICT systems at Headquarters and regional offices. • Percentage of reported incidents solved within one working day by the Safeguards Service Desk.
• Improved information security, physical security, and business continuity and disaster recovery.	• Maturity level for the critical security controls that support Department of Safeguards information technology security. • Number of successful business continuity and disaster recovery scenario tests.
Projects	
Title	**Main Planned Outputs**
4.1.9.001 ICT development	Effectively implemented and maintained ICT solutions (developed in-house or utilizing commercial solutions) for the Department, as well as for States to collaborate on safeguards specific matters, including 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 and training; mobile devices management; mobile platform, disaster recovery and next generation security implementation.
4.1.9.003 Security	Security procedures and response to physical/information security incidents; business continuity and disaster recovery plans; security awareness campaigns; training for staff on classifying and handling sensitive information; coordination/cooperation with the Agency's overall security efforts.

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. Since 16 January 2016 (JCPOA Implementation Day), the Agency has verified and monitored Iran's implementation of its nuclear-related commitments under the JCPOA.

Furthermore, the Agency is intensifying its readiness to play its essential role, in accordance with its mandate, in verifying the DPRK's nuclear programme.

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, assessments and evaluations: 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. The Agency is intensifying its readiness to play its essential role in verifying the DPRK's nuclear programme. An advanced technology framework including business continuity measures is a strategic enabler for safeguards implementation of other verification tasks and, as also demonstrated during the COVID-19 pandemic, needs to be continuously supported for the Agency to remain agile and prepared to implement its mandate.

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 covers the verification and monitoring of the nuclear-related commitments of the Islamic Republic of Iran as set out in the JCPOA, in light of United Nations Security Council resolution 2231 (2015), as well as activities to intensify the Agency's readiness to play its essential role in verifying the DPRK's nuclear programme.

Objectives, Outcomes and Performance Indicators by Programme

Programme 4.2 Other Verification Activities	
Objectives:	
— *To assist with other verification tasks, in accordance with the Agency's Statute, as requested by States and approved by the Board of Governors.*	
Outcomes	**Performance Indicators**
• Timely response to requests by States to carry out verification tasks approved by the Board of Governors.	• Percentage of approved verification tasks carried out in a timely manner.

Subprogramme 4.2.1 Other Verification Activities
Objectives:
— *To implement effective verification and monitoring of the nuclear-related commitments of the Islamic Republic of Iran 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 to enhance the Agency's readiness to play its essential role in monitoring and verifying the DPRK's nuclear programme.*
— *To follow any developments in the disposition of nuclear material 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 the nuclear-related commitments of the Islamic Republic of Iran as set out in the JCPOA.	• Timely reports to the Board of Governors and, in parallel, to the United Nations Security Council.
• Enhanced 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), if concluded.	• Percentage of required arrangements, approaches and systems in place to allow for verification related to specific verification agreement(s), if 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; SER; knowledge management and training; 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 United Nations Security Council.

Major Programme 4 — Nuclear Verification

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

Programme/Subprogramme/Project	2022 at 2022 Prices		2023 at 2022 Prices	
	Regular Budget	Unfunded	Regular Budget	Unfunded
4.0.0.001 Overall management and coordination	3 155 972	168 315	3 154 567	168 315
4.0.0.002 Safeguards effectiveness evaluation	958 780	505 948	958 780	505 948
4.S Corporate shared services	10 665 700	249 875	10 534 508	261 832
	14 780 452	**924 139**	**14 647 855**	**936 096**
4.1.1.001 Strategic planning and coordination	1 132 956	525 786	1 119 000	525 818
4.1.1.002 Safeguards approaches and concepts	2 661 246	425 164	2 639 502	398 498
4.1.1.003 Process design and quality management	1 900 193	106 664	1 889 006	106 664
4.1.1.004 Safeguards staff training and traineeship	2 241 534	2 512 513	2 230 840	2 645 817
4.1.1.005 Training and assistance to SSACs	773 516	1 680 653	773 516	1 680 653
4.1.1 Concepts and Planning	8 709 446	5 250 780	8 651 864	5 357 449
4.1.2.001 Verification for States with a CSA and an AP in force	16 832 487	-	16 831 364	-
4.1.2.002 Verification for States with a CSA in force	357 202	-	357 202	-
4.1.2.003 Verification for States with a VOA and an AP in force	504 296	-	504 296	-
4.1.2 Safeguards Implementation for States under the Responsibility of Division SGOA	17 693 985	-	17 692 862	-
4.1.3.001 Verification for States with a CSA and an AP in force	8 886 726	-	8 886 726	-
4.1.3.002 Verification for States with a CSA in force	4 961 202	-	4 961 202	-
4.1.3.003 Verification for States with an INFCIRC/66-type agreement in force	3 204 493	-	3 204 493	-
4.1.3.004 Verification for States with a VOA and an AP in force	-	335 053	-	335 053
4.1.3.005 Verification for Iran (CSA (in force) and AP (provisionally applied))	9 314 221	-	9 314 222	-
4.1.3 Safeguards Implementation for States under the Responsibility of Division SGOB	26 366 641	335 053	26 366 642	335 053
4.1.4.001 Verification for States with a CSA and an AP in force	17 101 407	-	17 017 606	-
4.1.4.002 Verification for States with a CSA in force	343 996	-	343 996	-
4.1.4.003 Verification for States with a VOA and an AP in force	640 486	506 008	642 448	506 008
4.1.4 Safeguards Implementation for States under the Responsibility of Division SGOC	18 085 889	506 008	18 004 049	506 008

Major Programme 4 — Nuclear Verification

Summary of Programme Structure and Resources

(excluding Major Capital Investments)

	2022 at 2022 Prices		2023 at 2022 Prices	
Programme/Subprogramme/Project	**Regular Budget**	**Unfunded**	**Regular Budget**	**Unfunded**
4.1.5.001 Declared information analysis	2 529 341	1 581 815	2 529 341	1 581 815
4.1.5.002 Nuclear fuel cycle information analysis	3 743 654	1 669 783	3 743 654	1 669 783
4.1.5.003 State infrastructure analysis	3 148 374	1 700 814	3 200 365	1 600 350
4.1.5.004 Information collection and analysis	3 843 839	1 470 156	3 790 186	1 470 156
4.1.5 Information Analysis	13 265 206	6 422 567	13 263 545	6 322 103
4.1.6.001 Portable and resident non-destructive assay equipment	4 406 769	2 175 243	4 406 769	2 175 243
4.1.6.002 Unattended safeguards instrumentation	6 984 608	491 886	6 984 608	491 886
4.1.6.003 Equipment logistics and storage	3 741 054	955 452	3 741 054	955 452
4.1.6.004 Systems integration and coordination	4 592 466	1 191 205	4 792 003	1 191 205
4.1.6.005 Development of equipment components and stand-alone instruments	2 177 179	543 349	2 177 179	543 349
4.1.6.006 Development of instrumentation systems and methodology	668 684	226 365	668 684	226 365
4.1.6 Provision and Development of Safeguards Instrumentation	22 570 760	5 583 501	22 770 297	5 583 501
4.1.7.001 Analytical services and sample analysis	11 299 737	409 137	11 299 737	191 499
4.1.7 Analytical Services	11 299 737	409 137	11 299 737	191 499
4.1.8.001 Develop and implement a safeguards approach for J-MOX	442 773	-	442 773	-
4.1.8.002 Integrated Life Cycle Management of Safeguards Assets (ILSA)	1 017 000	-	1 017 000	-
4.1.8 Special Projects	1 459 773	-	1 459 773	-
4.1.9.001 ICT development	7 000 174	8 185 615	6 984 613	7 658 931
4.1.9.002 ICT infrastructure and support	7 596 789	4 193 904	7 695 800	1 364 610
4.1.9.003 Security	1 727 420	686 741	1 727 420	686 741
4.1.9 Safeguards Information and Communication Technology (ICT)	16 324 384	13 066 261	16 407 834	9 710 283
4.1 Safeguards Implementation	**135 775 821**	**31 573 307**	**135 916 604**	**28 005 896**
4.2.1.001 Verification activities in the Democratic People's Republic of Korea	824 649	141 443	816 464	141 443
4.2.1.002 Verification and monitoring of Iran's nuclear related commitments	2 276 343	4 210 155	2 276 343	4 210 155
4.2.1 Other Verification Activities	3 100 992	4 351 598	3 092 807	4 351 598
4.2 Other Verification Activities	**3 100 992**	**4 351 598**	**3 092 807**	**4 351 598**
Major Programme 4 - Nuclear Verification	**153 657 266**	**36 849 044**	**153 657 266**	**33 293 589**

Major Programme 4 — Nuclear Verification

Activities unfunded in the Regular Budget

(excluding Major Capital Investments)

Project	Tasks	2022 Unfunded	2023 Unfunded
4.0.0.001 Overall management and coordination	Overall management and coordination	168 315	168 315
4.0.0.002 Safeguards effectiveness evaluation	Safeguards effectiveness evaluation	505 948	505 948
4.1.1.001 Strategic planning and coordination	Strategic planning, Member States Support Programme (MSSP) coordination	525 786	525 818
4.1.1.002 Safeguards approaches and concepts	Safeguards approaches and concepts	425 164	398 498
4.1.1.003 Process design and quality management	Quality management system performance and improvement	106 664	106 664
4.1.1.004 Safeguards staff training and traineeship	Training implementation; Safeguards traineeship programme; Development and evaluation of safeguards training courses	2 512 513	2 645 817
4.1.1.005 Training and assistance to SSACs	Training	1 680 653	1 680 653
4.1.3.004 Verification for States with a VOA and an AP in force	Verification in States with voluntary offer agreements	335 053	335 053
4.1.4.003 Verification for States with a VOA and an AP in force	Verification in States with voluntary offer agreements	506 008	506 008
4.1.5.001 Declared information analysis	Development activities and methodology and support tasks	1 581 815	1 581 815
4.1.5.002 Nuclear fuel cycle information analysis	Development activities and methodology and support tasks	1 669 783	1 669 783
4.1.5.003 State infrastructure analysis	Development activities and methodology and support tasks	1 700 814	1 600 350
4.1.5.004 Information collection and analysis	Development activities and methodology and support tasks	1 470 156	1 470 156
4.1.6.001 Portable and resident non-destructive assay equipment	Expert support in the area of non-destructive assay activities; Provision and maintenance of portable and resident non-destructive assays	2 175 243	2 175 243
4.1.6.002 Unattended safeguards instrumentation	Expert support in the area of unattended safeguards instrumentation. Provision and maintenance of surveillance instrumentation, provision of unattended monitoring systems	491 886	491 886
4.1.6.003 Equipment logistics and storage	Safeguards asset management	955 452	955 452
4.1.6.004 Systems integration and coordination	Expert support in the area of Safeguards system integration and coordination. Provision and maintenance seals and containment equipment; Provision and maintenance of remote monitoring instrumentation; Development of safeguards technical and scientific services project engineering	1 191 205	1 191 205
4.1.6.005 Development of equipment components and stand-alone instruments	Development of safeguards equipment components and stand-alone instruments	543 349	543 349
4.1.6.006 Development of instrumentation systems and methodology	Technological foresight development activities and evaluation of innovations	226 365	226 365
4.1.7.001 Analytical services and sample analysis	Coordinate and support the provision of analytical services	409 137	191 499
4.1.9.001 ICT Development	Keeping Information and Communication Technology (ICT) updated	8 185 615	7 658 931
4.1.9.002 ICT Infrastructure and support	Information and Communication Technology (ICT) operations	4 193 904	1 364 610
4.1.9.003 Security	Business continuity and disaster recovery	686 741	686 741
4.2.1.001 Verification activities in the Democratic People's Republic of Korea	Maintain 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	141 443	141 443
4.2.1.002 Verification and monitoring of Iran's nuclear related commitments	Nuclear related commitments	4 210 155	4 210 155
4.S Corporate shared services	Corporate shared services	249 875	261 832
Grand Total		**36 849 044**	**33 293 589**

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 objectives of the Agency's Member States. This requires effective guidance on priorities; quality assurance; interactions with Member States; services provided to the Policy-Making Organs, commensurate with evolving demands, including interpretation; development and implementation of programmes; results based management, including performance assessment and risk management; gender mainstreaming; partnerships and resource mobilization; and the wider dissemination of information within the Secretariat, between the Secretariat and Member States, and for the benefit of the general public and the media. Furthermore, an independent Ethics function continues to promote and sustain an ethical organizational culture of integrity, accountability and transparency, and continues to assist the Director General in ensuring that all staff members observe and perform their functions consistent with the highest standards of integrity.

To help achieve the Agency's mandate, a wide range of administrative, managerial, oversight and legal services continues to support Agency programmes, enabling efficient and effective programme delivery to Member States.

To ensure sustainable operation of facilities maintained or used by the Agency, such as its laboratories and the Vienna International Centre (VIC), further resources are needed, including site security, site-wide engineering and infrastructure functions at Seibersdorf. Approximately 25% of the Major Programme 5 budget is related to the cost of common security services and buildings management of the VIC. Adequate funding is needed to cover the ageing infrastructure of the VIC; however, the Agency's contribution to this common buildings management service must also be balanced within the current budget climate of having to 'do more with same'.

To meet the increase in demand of services within given resources, Major Programme 5 remains strongly focused on efficiencies and productivity. It continues to proactively optimize the delivery of its support services by streamlining processes, adopting new technologies and leveraging existing investments. As a key enabler for many support services, the implementation of the Agency-wide Information System for Programme Support (AIPS) continues to focus on efficiencies through the automation of processes. Recent examples of building sustainable efficiencies are the standardization of printing processes, an expanded use of new cloud services and the automation of transactions in financial services.

Adopting more agile working methods and services is not only important to improve the responsiveness and operation of the support services, but directly benefits the entire Agency. The experience gained and the tools put in place in 2020, including adapting to virtual meetings, are an example of how the adoption of new technologies can be leveraged to improve efficiencies across the Agency, e.g. by reducing the need for travel.

New innovative approaches increase reliance on IT and also require information security. It is therefore necessary to continue to build and sustain a secure IT infrastructure and to ensure that robust and appropriate measures are in place to address severe and escalating threats.

Procurement Services will continue to explore innovative, efficient options to ensure continued improvements, including emergency procurement to maintain the Agency's capacity to deliver rapid response assistance to Member States, as during the COVID-19 pandemic.

Human resources management will focus on identifying further efficiencies to improve the agility and effectiveness of the work force at the Agency, bearing in mind the technical competence of staff and gender balance.

The Agency will continue to strengthen accountability, efficiency and effectiveness through the activities of OIOS — including audits, evaluations, investigations and the provision of advisory support to senior management and Member States — as well as through the Secretariat's support to the External Auditors.

Objectives:
— *To continuously provide guidance and improve the results based management approach to ensure the quality, relevance, effectiveness and efficiency of all Agency programmes and the use of resources.*
— *To enhance understanding of the work of the Agency and to ensure timely access by stakeholders to relevant scientific and technical information.*

Outcomes	Performance Indicators
• Improved planning, implementation, assessment and evaluation of the Agency's programme in a fully coordinated manner, following the results based approach.	• Degree of achievement of high quality implementation of Agency planned programme.
• Increased timeliness and quality of administrative and legal services provided in relation to the scientific and technical programmes of the Agency.	• Timeliness and quality of legal services. • Timeliness and quality of administrative services.
• Enhanced efficiency and effectiveness of information support services and communications.	• Number of outreach activities to media and the public on the activities of the Agency.

Programmatic Changes and Trends

Subprogramme 5.0.1 Executive Leadership and Policy will continue to provide guidance for planning and implementation to ensure that all activities are undertaken within the Agency's statutory mandate and in line with the guidance of the Policy-Making Organs (PMOs). The results based culture across the Agency will be further strengthened to ensure timely and effective implementation of the Agency's programmes and delivery of concrete results, with more consistent integration of cross-organizational issues such as those relating to partnerships, gender and the Sustainable Development Goals. The Agency will follow a more harmonized, corporate approach towards resource mobilization and will continue to seek new initiatives, partnerships and innovative sources of funding to enable the expansion of services offered to Member States. The corporate approach will provide a common language and generate synergies, in line with the principle of transparency and the results based approach. The practice of continually improving efficiency has been embedded in the Agency's Programme and Budget planning process. Risk management will continue to be applied throughout the programme cycle, and to support accountability and decision-making. Services to the PMOs will continue to be provided, taking into consideration evolving demands, including interpretation. The independent Ethics function will continue ensuring that all staff members observe and perform their functions consistent with the highest standards of integrity.

Subprogramme 5.0.2 Legal Services will continue to provide support across the Agency in response to the steadily increasing number of requests for legal advice. The increase in requests over the past ten years is expected to continue, in particular with regard to the establishment of partnerships with traditional and non-traditional partners, outreach to Member States to raise awareness about the treaties for which the Director General is depositary, development of training for all levels of staff and support to Member States in the preparation of national legislation, including the implementation of international agreements. Substantial work continues in support of Agency safeguards and verification, and nuclear safety and security. The increasing programmatic needs are met through staffing stabilized during the previous biennium, as well as efficiencies achieved through the internal knowledge management strategies of the Office of Legal Affairs, such as developing an internal database for legislative assistance activities and optimizing the use of the logbook and other knowledge management tools, which have enhanced work planning and timeliness of response.

Subprogramme 5.0.3 Oversight Services will continue to support the Agency in delivering efficient, effective, high quality results; in managing risk; and in demonstrating accountability to Member States. Through its investigations and advisory services, OIOS also contributes to the Agency's focus on ensuring that it operates in an ethical working environment in line with its values.

Subprogramme 5.0.4 Public Information and Communications will continue to promote the Agency's activities and achievements, using existing communication channels (web, social media, events, media relations) as well as communication campaigns. Particular attention will be given to creating content providing scientific information with visuals to be easily disseminated by Member States, stakeholders and influencers. The Office of Public Information and Communication will enhance its monitoring and evaluation tools to assess the impact of its work to increase positive nuclear narratives among target audiences. The Agency will continue in its efforts to provide information in all official United Nations languages to the extent possible and relevant.

Subprogramme 5.0.5 Management and Administrative Services will continue to support the Agency to 'do more with same' and to further strengthen the results based approach in all areas of the Agency's work to provide high quality support to Member States. This is particularly relevant given the global economic situation and the financial difficulties faced by many Member States, further aggravated by the COVID-19 pandemic, which has also increased the demands for virtual meetings and tools for online collaboration. To improve transparency and emphasize the significance of ensuring efficient, innovative and effective operation of the support services that underpin all other programmes, their overall management and administration is now presented separately.

Subprogramme 5.0.6 Information and Communication Technology will continue investing in information technology (IT) to address, as the highest priority, the continuing growth and sophistication of IT and information security threats. The increased reliance on digital services during the COVID-19 pandemic further underlines the criticality of information security. The Agency will evaluate industry trends such as cloud based solutions, common commercial platforms, robotic process automation, and artificial intelligence to identify opportunities that may optimize the Agency's programme delivery and technology investment portfolio and support for Agency programmes. Optimizing the Agency's application portfolio may provide opportunities for the Agency to increase efficiency in the future.

Subprogramme 5.0.7 Financial Management and Services will continue to benefit from efficiencies brought about by AIPS. The implementation of AIPS and the International Public Sector Accounting Standards (IPSAS) were major projects that, although completed, continue to require fine-tuning, and enhancements. The Agency should expect continued productivity gains from its financial operations.

Subprogramme 5.0.8 Human Resources Management opportunities have been identified to address workforce planning and measures to improve organizational agility and effectiveness with a specific focus on human capacity, innovation and technology, and operating models, taking into account the ongoing review of the management of human resources. In this biennium, the benefits of the proactive human resources measures are expected to help the Agency achieve efficiency targets and business objectives.

The subprogramme further takes account of increasing global demand for talented staff, particularly in the nuclear industry. Emphasis will also be placed on organizational design and workforce planning, new gender initiatives, greater demands on policy development, resolution of staff relations issues, and streamlining of processes. The health and well-being of staff are being promoted and maintained via ongoing preventive health information campaigns and regular surveillance of occupational exposed workers.

Subprogramme 5.0.9 General Services will face increased demand for the provision of services, especially at the Seibersdorf site where the focus will be on the comprehensive administration of the site, including security and site-wide engineering and infrastructure functions. Modernization of the Agency's document retention, retrieval and archiving practices and the AIPS travel function are expected to produce efficiencies. A data migration project for recordkeeping will be introduced in 2023. A separate project to ensure adequate control and monitoring has been created for Buildings Management Services (BMS) and United Nations Security and Safety Service operations at the VIC. In addition, the Agency's contributions to the VIC's Major Repairs and Replacement Fund, which previously formed part of the BMS budget, will be financed from the Major Capital Investment Fund.

Subprogramme 5.0.10 Conference, Language and Publishing Services will continue to strengthen the application of IT to tasks related to conference, language and publishing services. This will include a 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 maintaining efforts to improve the timeliness, quality and consistency of documentation and correspondence submitted to Member States. Outsourcing of appropriate tasks in the publishing and language areas will continue.

Subprogramme 5.0.11 Procurement Services will continue to explore innovative, efficient options to ensure continued improvements in programmatic activities, emergency procurement, sustainable procurement, and the optimization of procurement tools and systems (iProcurement).

Objectives, Outcomes and Performance Indicators by Subprogramme

Subprogramme 5.0.1 Executive Leadership and Policy	
Objectives:	
— *To provide leadership and guidance for Agency activities at the executive level, and to continuously strengthen an integrated, results based management approach.*	
Outcomes	**Performance Indicators**
• Improved effectiveness, efficiency and transparency in the execution of Agency programmes and activities relevant to Member States.	• Member States' satisfaction with the efficiency, effectiveness and transparency of the programme delivered.

Projects	
Title	**Main Planned Outputs**
5.0.1.001 Executive leadership	Direction and leadership; guidance for Secretariat activities; liaison with Member States, and intergovernmental and non-governmental organizations.
5.0.1.002 Policy-Making Organs	Servicing of meetings of PMOs and subsidiary bodies, in alignment with Member States' current expectations on the conduct of PMO meetings, including interpretation; 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.
5.0.1.003 Ethics function	Prevention, outreach and training activities; strengthening of the ethics framework; provision of advice to staff members and other personnel, as well as to management, on ethics issues; administration of the protection against retaliation provisions under the Agency's Whistle-blower Policy; administration of the Agency's financial/conflict of interest disclosure programme.

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**
• Consistently high timeliness and quality 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 on time. • Percentage of feedback from clients that is positive.
Projects	
Title	**Main Planned Outputs**
5.0.2.001 Legal services	Providing legal services to the Director General, Secretariat, Policy-Making Organs and Member States in the development and implementation of Agency activities; hosting the first ever International Conference on Nuclear Law in February 2022 bringing together experts from Member States, industry, academia and non-governmental organizations.

Subprogramme 5.0.3 Oversight Services	
Objectives:	
— *To provide the Director General, senior management and other stakeholders with independent, objective advice and assurance that Agency activities are carried out efficiently, effectively and in compliance with regulations and rules and with sound management practice.*	
Outcomes	**Performance Indicators**
• High quality assurance and advice from OIOS to help the Agency manage its risks, strengthen its activities, and demonstrate its accountability and transparency to stakeholders.	• Percentage of assignments finalized within the work plan cycle. • Percentage of satisfactory stakeholder feedback on the quality and utility of OIOS assignments.

Projects	
Title	**Main Planned Outputs**
5.0.3.001 Oversight services	Reports and advice on the efficiency, effectiveness and compliance with rules and regulations and sound management practice of the work of the Agency.

Subprogramme 5.0.4 Public Information and Communications	
Objectives:	
— *To increase positive recognition of the Agency's work — externally and internally — and its contribution to accelerate and enlarge the contribution of nuclear science and technology for peace and development.*	
Outcomes	**Performance Indicators**
• Enhanced efficiency and effectiveness of information support services and communications.	• Number of materials produced and events held internally for staff, and externally for the media and the public, on the activities of the Agency.
• Increased knowledge, engagement and reporting of nuclear issues and the Agency's mission, activities and achievements by its stakeholders and the media.	• Number and accuracy of media articles about or related to the Agency and its activities. • Number of participants in public events, including the Long Night of Research, the World Cancer Day and the Scientific Forum.
• Increased public knowledge, engagement and reporting of nuclear issues and the Agency's mission, activities and achievements, through direct communication channels.	• Monthly audience on website. • Monthly audience on social media.
Projects	
Title	**Main Planned Outputs**
5.0.4.001 Public information and communications	Press conferences, media briefings, interviews, press releases, replies to media and public queries, web articles, print and digital publications, social media posts, multimedia products, campaigns, events, presentations for visitors and internal communication.

Subprogramme 5.0.5 Management and Administrative Services	
Objectives:	
— *To provide coordination of all management activities in order to achieve innovative, efficient and effective implementation of the Agency's programme in line with the established policies.*	
Outcomes	**Performance Indicators**
• Increased efficiency and client satisfaction in respective programme support functions.	• Percentage of survey respondents who indicated that the service provided by the Department of Management is helping them do their job and achieve results. • Percentage of Department of Management services meeting targets on efficiency improvements.
Projects	
Title	**Main Planned Outputs**
5.0.5.001 Management and administrative services	Overarching direction for support services and related communication including the preparation of the programme and budget; optimization of operational efficiency; liaison with United Nations system organizations and the Host Government; reviews of security and coordination with other VIC based organizations.
5.0.5.002 United Nations common system contribution	Coordination with other United Nations system organizations.

Subprogramme 5.0.6 Information and Communication Technology	
Objectives:	
— *To provide a secure information technology (IT) environment and solutions that enable the efficient and effective delivery of the Agency's programme.*	
Outcomes	**Performance Indicators**
• Increased security and efficiency of IT services and infrastructure.	• Percentage of Agency events held virtually. • Percentage of applications using unsupported components.
• Enhanced consistency in supporting the Agency's programme through reliable IT services and infrastructure.	• Availability of critical IT applications and infrastructure services. • Percentage of Agency staff expressing satisfaction with IT services in a survey.
Projects	
Title	**Main Planned Outputs**
5.0.6.001 Information and communication technology	IT end-user services; IT infrastructure services; IT solutions; IT security; IT programme management; IT processes and procedures.

Subprogramme 5.0.7 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**
• Enhanced timeliness and reliability of financial planning and budgeting; relevant, accurate and reliable financial reporting.	• Percentage of official budget and financial documents issued within Board of Governors and General Conference deadlines. • Unqualified opinion by the External Auditor of the Agency's annual Financial Statements.
• Increased efficiency and effectiveness of the financial administration of the Agency that supports all Agency programmes.	• Percentage of staff expressing satisfaction with financial services. • Cost of financial services over total expenditure.
Projects	
Title	**Main Planned Outputs**
5.0.7.001 Financial management and services	The Agency's Programme and Budget; the Agency's Financial Statements; reports to governing bodies and donors; effective delivery of financial services.

Subprogramme 5.0.8 Human Resources Management	
Objectives:	
— *To provide a modern, strategic, client focused and solution oriented human resources management function.* — *To achieve operational excellence and higher productivity in the human resources management function.* — *To promote the occupational health and well-being of staff.*	
Outcomes	**Performance Indicators**
• Improved human resources function with a strong client orientation and efficient workflows.	• Percentage of customers satisfied with the quality of services provided by human resources. • Average time to process transactions.

Outcomes	Performance Indicators
• Improved gender parity.	• Jointly with the Departments/Offices, increased representation of women in the professional and higher categories at the Agency level as measured by the gender parity score card. • Increased percentage of staff awareness, knowledge and skills in relation to gender equality as defined by the periodic IAEA Survey on Gender Equality.
• Improved occupational health and well-being of staff.	• Total number of work-related accidents, incidents and illnesses. • Percentage of customers satisfied with the VIC Medical Service.

Projects

Title	Main Planned Outputs
5.0.8.001 Human resources advisory and administration services	Organizational development, workforce planning, contract administration, talent management; service level agreements; documents on human resources procedures; medical evaluations, surveillance assessments and statistics on health.

Subprogramme 5.0.9 General Services

Objectives:

— *To provide effective and efficient facilities management, travel and logistics management services.*

— *To ensure harmonized records and mail management policies and procedures.*

Outcomes	Performance Indicators
• Improved customer satisfaction with quality of general support services.	• Percentage of customer satisfied with the quality and timely provision of general support services.
• Improved timeliness in delivery of customer oriented service.	• Percentage of service requests processed on time.

Projects

Title	Main Planned Outputs
5.0.9.001 General services management	Visa applications, customs forms, office moves, completed facility maintenance requests, insurance contracts, records archived, processed mail.
5.0.9.002 Buildings Management Services and United Nations Security and Safety Service Costs	Buildings management and safety and security services provided.

Subprogramme 5.0.10 Conference, Language 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 and managing events, issuing documents in the six official languages of the Policy-Making Organs, and preparing and distributing publications.*

Outcomes	Performance Indicators
• Enhanced and efficient multilingual dialogue and communication between the Secretariat, Member States and major stakeholders.	• Number of words translated per hour worked. • Percentage of clients satisfied with the Agency's conference services.
• Strengthened exchange of scientific and technical information on peaceful uses of atomic energy.	• Percentage of manuscripts processed by the Division of Conference and Document Services. • Percentage of clients satisfied with the Division of Conference and Document Services.

Projects	
Title	**Main Planned Outputs**
5.0.10.001 Conference, language and publishing services	Organizational support, administrative and logistical services for Agency events; translated documents and summary records in six official languages of the Policy-Making Organs; scientific and technical publications and other materials.

Subprogramme 5.0.11 Procurement Services	
Objectives:	
— *To support 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**
• Enhanced Agency procurement system (iProcurement) and achievement of best value for money to support the Agency's programmatic activities through efficient processes in procuring goods and services, and through fair, transparent and effective competition.	• Number of enhancements to the Agency's procurement system (iProcurement and/or other systems or tools). • Savings to the Agency in the procurement of goods and services.
• Achievement of client satisfaction in procurement services.	• Percentage of customers satisfied with the quality of services provided by the Office of Procurement Services.
Projects	
Title	**Main Planned Outputs**
5.0.11.001 Procurement services	Contracts, purchase orders, agreements, service orders, long term agreements, service level agreements.

Major Programme 5 — Policy, Management and Administration Services

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

	2022 at 2022 Prices		2023 at 2022 Prices	
Programme/Subprogramme/Project	**Regular Budget**	**Unfunded**	**Regular Budget**	**Unfunded**
5.0.1.001 Executive leadership	4 971 207	213 692	5 019 258	220 995
5.0.1.002 Policy-Making Organs	2 433 315	132 189	2 433 315	124 887
5.0.1.003 Ethics function	333 238	106 664	333 243	106 664
5.0.1 Executive Leadership and Policy	**7 737 761**	**452 546**	**7 785 816**	**452 546**
5.0.2.001 Legal services	3 000 804	748 986	3 000 803	748 986
5.0.2 Legal Services	**3 000 804**	**748 986**	**3 000 803**	**748 986**
5.0.3.001 Oversight services	3 421 160	403 597	3 421 160	403 597
5.0.3 Oversight Services	**3 421 160**	**403 597**	**3 421 160**	**403 597**
5.0.4.001 Public information and communications	3 328 404	619 159	3 328 405	586 513
5.0.4 Public Information and Communications	**3 328 404**	**619 159**	**3 328 405**	**586 513**
5.0.5.001 Management and administrative services	836 027	132 189	836 027	132 189
5.0.5.002 United Nations common system contribution	594 774	-	594 774	-
5.0.5 Management and Administrative Services	**1 430 801**	**132 189**	**1 430 801**	**132 189**
5.0.6.001 Information and communication technology	10 444 699	273 924	10 444 720	273 924
5.0.6 Information and Communication Technology	**10 444 699**	**273 924**	**10 444 720**	**273 924**
5.0.7.001 Financial management and services	6 997 862	594 986	6 956 500	558 380
5.0.7 Financial Management and Services	**6 997 862**	**594 986**	**6 956 500**	**558 380**
5.0.8.001 Human resources advisory and administration services	6 698 801	910 859	6 782 024	910 859
5.0.8 Human Resources Management	**6 698 801**	**910 859**	**6 782 024**	**910 859**
5.0.9.001 General services management	9 359 575	391 442	9 352 735	391 442
5.0.9.002 Buildings Management Services and United Nations Security and Safety Service Costs	19 748 216	-	19 697 889	-
5.0.9 General Services	**29 107 791**	**391 442**	**29 050 624**	**391 442**
5.0.10.001 Conference, language and publishing services	5 412 446	141 443	5 389 998	141 443
5.0.10 Conference, language and publishing services	**5 412 446**	**141 443**	**5 389 998**	**141 443**
5.0.11.001 Procurement services	2 029 826	1 100 501	2 129 512	1 100 501
5.0.11 Procurement Services	**2 029 826**	**1 100 501**	**2 129 512**	**1 100 501**
5.S Corporate shared services	4 677 214	131 978	4 567 206	137 994
Major Programme 5 - Policy, Management and Administration Services	**84 287 568**	**5 901 609**	**84 287 568**	**5 838 373**

Major Programme 5 — Policy, Management and Administration Services

Activities unfunded in the Regular Budget

(excluding Major Capital Investments)

Project	Tasks	2022 Unfunded	2023 Unfunded
5.0.1.001 Executive leadership	General guidance and management	213 692	220 995
5.0.1.002 Policy-Making Organs	Policy-Making organs	132 189	124 887
5.0.1.003 Ethics function	Ethics function	106 664	106 664
5.0.2.001 Legal services	Legal services	748 986	748 986
5.0.3.001 Oversight services	Oversight services	403 597	403 597
5.0.4.001 Public information and communications	Public information and communications	619 159	586 513
5.0.5.001 Management and administrative services	General coordination and management	132 189	132 189
5.0.6.001 Information and communication technology	Information and communication technology	273 924	273 924
5.0.7.001 Financial management and services	Financial management and services	594 986	558 380
5.0.8.001 Human resources advisory and administration services	Human resources advisory and administration services	910 859	910 859
5.0.9.001 General services management	General services management	391 442	391 442
5.0.10.001 Conference, language and publishing services	Conference, language and publishing services	141 443	141 443
5.0.11.001 Procurement services	Procurement services	1 100 501	1 100 501
5.S Corporate shared services	Corporate shared services	131 978	137 994
Grand Total		**5 901 609**	**5 838 373**

Major Programme 6
Management of Technical Cooperation for Development

Introduction

Major Programme 6 enables the management, development and implementation of technical cooperation (TC) projects within the framework of the biennial technical cooperation programme (TCP). The TCP is designed to respond to relevant developmental priorities of Member States through effective programme management, in accordance with its strategic objective, and will continue to serve as the major vehicle for the transfer of nuclear science and technology and to build capacity — with an emphasis on human resource development — in nuclear applications in Member States, contributing to Member State efforts to achieve the SDGs.

The TCP is a cross-cutting Agency mechanism that supports Member States in addressing their sustainable development needs. It facilitates partnership building, supports knowledge sharing, and builds and reinforces scientific networking through national, regional and interregional projects funded from the Technical Cooperation Fund, extrabudgetary resources and in-kind contributions. TC projects are developed through a consultative process with Member States and address national development priorities outlined in Country Programme Frameworks (CPFs) and national development plans, as well as issues of common interest and needs identified through various regional frameworks. Under the 2022–2023 TCP cycle, a total of 144 Member States and territories (including 35 least developed countries) will have a national TC project. For planning purposes, it is assumed that the overall rate of attainment of the Technical Cooperation Fund will reach 94%.

The TCP for the 2022–2023 cycle is formulated with an emphasis on the following:

- Enhancing dialogue with, and participation of, Member States at all stages of the programme cycle, in particular in the design, implementation, monitoring and reporting of TC projects;
- Ensuring the provision of adequate support to meet the growing demand and needs of Member States in using nuclear technology for sustainable development, including supporting their efforts to achieve the SDGs, particularly SDGs 2, 3, 6, 7, 9, 13, 14, 15 and 17;
- Supporting Member States in capacity building related to the early detection and control of zoonotic diseases;
- Supporting Member States that require assistance with building and expanding cancer care capacity by integrating radiotherapy, diagnostic imaging and nuclear medicine services into a comprehensive cancer control programme;
- Supporting Member States in addressing global challenges, such as climate change and plastic pollution;
- Supporting Member States to build and strengthen their regulatory and safety infrastructures for the safe and secure use of nuclear science and applications;
- Promoting cooperation among Member States in response to evolving development challenges through information and knowledge exchange utilizing, in particular, the expertise available regionally;
- Ensuring the Agency’s continued capacity to plan and 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 by further strengthening the results based approach and increasing in-house coordination with technical Departments;
- Enhancing partnerships and resource mobilization efforts, including non-traditional donors and public–private partnerships;
- Strengthening the visibility and role of the TCP in nuclear technology transfer through outreach efforts, including through the Ministerial Conference on Nuclear Science, Technology and Applications and the Technical Cooperation Programme to be held in 2023; and
- Promoting gender mainstreaming, with a particular focus on the participation of women in TC activities.

Objectives:	
— *To manage, develop and implement a needs-based, responsive technical cooperation programme in an effective and efficient manner, and thus to strengthen the technical capacities of Member States in the peaceful application and safe use of nuclear technologies for sustainable development.*	
Outcomes	**Performance Indicators**
• Increased effectiveness and efficiency of the TCP.	• Percentage of Member States with national TC projects that have valid CPFs. • Percentage of completed technical cooperation projects during the previous year that achieved the established objectives at the output level.
• Improved quality of the TCP.	• Percentage of projects with high-quality design. • Percentage of projects with an annual progress assessment report.
• Strengthened partnerships and resource mobilization.	• Number of valid partnership agreements. • Mobilization of additional resources for the TCP.

Programmatic Changes and Trends

Subprogramme 6.0.1 Management of the Technical Cooperation Programme. Requests by Member States for TCP assistance are expected to increase in 2022–2023, driven, inter alia, by increased demand for the application of nuclear technology in support of sustainable development and Member State efforts to achieve the SDGs, including in the areas of human health, especially for cancer control, food and agriculture, water resource management and the environment. Strengthening regulatory and safety infrastructures remains a priority for Member States, and it is expected that there will be an increase in Member State requests for assistance in coping with possible disease outbreaks, particularly those related to zoonotic diseases, or with natural disasters, as well as in addressing global challenges such as climate change and plastic pollution.

Main Planned Outputs by Project

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; briefing notes; reports to the Agency's Policy-Making Organs; Technical Cooperation Reports; Technical Assistance and Cooperation Committee (TACC) documentation; contribution to relevant United Nations reports; Peaceful Uses Initiative reports; concept notes and papers; strategic analyses; high TCF rate of attainment; extrabudgetary resources mobilized.
6.0.1.002 Coordination of and support to the TC programme	Support the development and implementation of the TC programme through the provision of services to the TC regional Divisions, including the Programme of Action for Cancer Therapy (PACT); revised technical cooperation quality criteria; TACC documentation; support documents for the Agency's Policy-Making Organs; briefing notes; partnerships established and strengthened; extrabudgetary resources mobilized.
6.0.1.003 Management of the TC programme for Africa	Drafted/signed/updated CPFs; regional strategic cooperative framework; TACC documentation; Country Programme Notes; expert missions; fellowships; training courses; procurement of equipment; briefing notes; programming and monitoring reports; partnership documents; extrabudgetary resources mobilized.

Title	Main Planned Outputs
6.0.1.004 Management of the TC programme for Asia and the Pacific	Drafted/signed/updated CPFs; TACC documentation; Country Programme Notes; expert missions, fellowships, training courses, procurement processed; briefing notes; programming and monitoring reports; partnership documents; extrabudgetary resources mobilized.
6.0.1.005 Management of the TC programme for Europe	Effective and timely delivery of all components of the TC programme in the region, including human resource and equipment components; preparation of all relevant documentation, including, inter alia, new and updated CPFs; and a revised Regional Profile; TACC documentation, annual reports, Country Programme Notes and monitoring reports; partnership documents; mobilization of extrabudgetary resources.
6.0.1.006 Management of the TC programme for Latin America and the Caribbean	Drafted/signed/updated CPFs; regional strategic cooperative framework; TACC documentation; Country Programme Notes; expert missions, fellowships, training courses, procurement processed; briefing notes; programming and monitoring reports; partnership documents; extrabudgetary resources mobilized.
6.0.1.007 Procurement services	Procurement requisitions processed; purchase orders issued; delivery of goods, equipment and services; on-site installation and training, where necessary.
6.0.1.008 Coordination of and support to PACT	imPACT reviews; mobilized extrabudgetary resources; expert advisory missions; national cancer control plans; partnerships established; bankable documents.

Major Programme 6 — Management of Technical Cooperation for Development

Summary of Programme Structure and Resources

(excluding Major Capital Investments)

Programme/Subprogramme/Project	2022 at 2022 Prices		2023 at 2022 Prices	
	Regular Budget	Unfunded	Regular Budget	Unfunded
6.0.1.001 Overall management and strategic guidance	1 155 022	99 686	1 155 022	99 686
6.0.1.002 Coordination of and support to the TC programme	4 321 043	441 847	4 321 043	659 485
6.0.1.003 Management of the TC programme for Africa	5 247 278	-	5 247 278	-
6.0.1.004 Management of the TC programme for Asia and the Pacific	4 219 782	106 664	4 219 782	106 664
6.0.1.005 Management of the TC programme for Europe	3 590 551	195 712	3 590 551	195 712
6.0.1.006 Management of the TC programme for Latin America and the Caribbean	3 512 797	196 854	3 512 797	196 854
6.0.1.007 Procurement services	1 768 762	-	1 768 762	-
6.0.1.008 Coordination of and support to PACT	2 475 229	106 664	2 475 229	106 664
6.0.1 Management of Technical Cooperation Programme	26 290 465	1 147 427	26 290 465	1 365 065
6.S Corporate shared services	**1 330 357**	**41 514**	**1 330 357**	**44 800**
6.0 Management of Technical Cooperation Programme	**27 620 821**	**1 188 941**	**27 620 821**	**1 409 865**
Major Programme 6 - Management of Technical Cooperation for Development	**27 620 821**	**1 188 941**	**27 620 821**	**1 409 865**

Major Programme 6 — Management of Technical Cooperation for Development

Activities unfunded in the Regular Budget

(excluding Major Capital Investments)

Project	Tasks	2022 Unfunded	2023 Unfunded
6.0.1.001 Overall management and strategic guidance	Management of the TC programme	99 686	99 686
6.0.1.002 Coordination of and support to the TC programme	Management of the TC programme	441 847	659 485
6.0.1.004 Management of the TC programme for Asia and the Pacific	Management of the TC programme for Asia and the Pacific	106 664	106 664
6.0.1.005 Management of the TC programme for Europe	Management of the TC programme for Europe	195 712	195 712
6.0.1.006 Management of the TC programme for Latin America and the Caribbean	Management of the TC programme for Latin America and the Caribbean	196 854	196 854
6.0.1.008 Coordination of and support to PACT	Coordination of and support to PACT	106 664	106 664
6.S Corporate shared services	Corporate shared services	41 514	44 800
Grand Total		**1 188 941**	**1 409 865**

ANNEXES

Annex 1. List of Acronyms

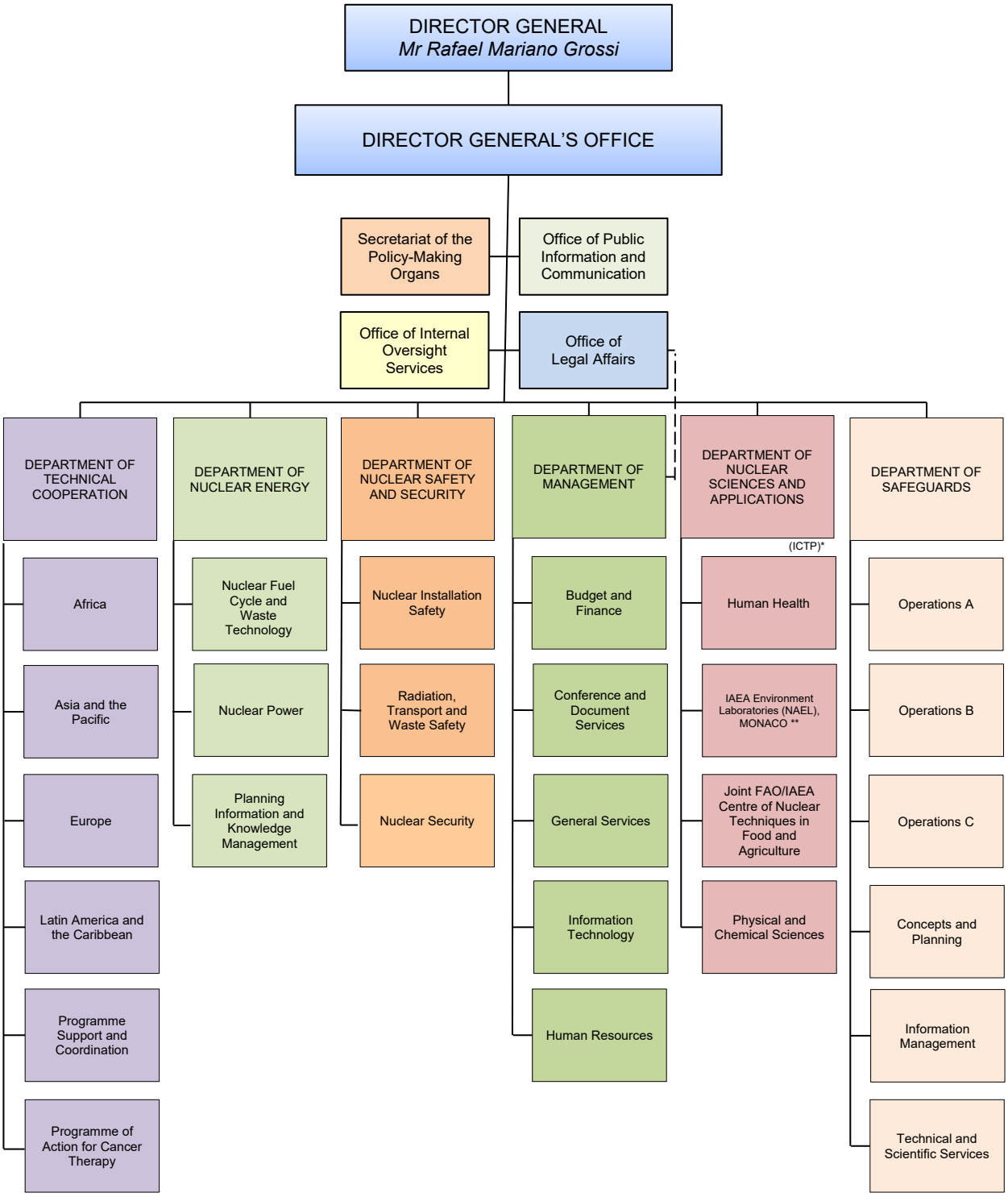
AIPS	Agency-wide Information System for Programme Support
ALADDIN	A Labelled Atomic Data Interface
ALMERA	Analytical Laboratories for the Measurement of Environmental Radioactivity
AMBDAS	Atomic and Molecular Bibliographic Data System
AP	additional protocol
ARTEMIS	Integrated Review Service for Radioactive Waste and Spent Fuel Management, Decommissioning and Remediation
ASHI	After-service health insurance
CA	complementary access
CLP4Net	IAEA Cyber Learning Platform for Network Education and Training
CNS	Convention on Nuclear Safety
ConvEx	Convention Exercise
CPF	Country Programme Frameworks
CPPNM	Convention on the Physical Protection of Nuclear Material
CRP	Coordinated Research Project
CSA	comprehensive safeguards agreement
CT	Computed Tomography
D&IS	development and implementation support
DIV	design information verification
DOL	Dosimetry Laboratory
DPRK	Democratic People's Republic of Korea
DSA	daily subsistence allowance
DSRS	Disused Sealed Radioactive Sources
EPGR	encapsulation plant and geological repository
EPR	emergency preparedness and response
EPRIMS	Emergency Preparedness and Response Information Management System
E&T	education and training
FAO	Food and Agriculture Organization
FTE	full-time equivalent
GNIP	Global Network of Isotopes in Precipitation
GNIR	Global Network of Isotopes in Rivers
GSR	General Safety Requirements
HABs	Harmful Algal Blooms
HEU	high enriched uranium
HR	human resources
HTGR	high temperature gas cooled reactor
HTR	high temperature reactor
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
ICP-MS	inductively coupled plasma mass spectrometry
ICSRS	International Catalogue of Sealed Radioactive Sources and Devices
ICT	information and communication technology
ICTP	International Centre for Theoretical Physics
IES	Incident and Emergency System

INDEN	International Nuclear Data Evaluation Network
INFCIRC	Information Circular
INIR	Integrated Nuclear Infrastructure Review
INIS	International Nuclear Information System
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
IOC	Intergovernmental Oceanographic Commission
IPET-2020	International Conference on Molecular Imagining and Clinical PET-CT: Paving the Way Towards Personalized Medicine and Theranostics
IPSAS	International Public Sector Accounting Standards
IRL	Internet Reactor Laboratory
IRRS	Integrated Regulatory Review Service
IRS	International Reporting System for Operating Experience
ISE	Integrated Safeguards Environment
IT	information technology
ITDB	Incident and Trafficking Database
IWAVE	IAEA Water Availability Enhancement Project
JCPOA	Joint Comprehensive Plan of Action
J-MOX	Japan Mixed Oxide Fuel Fabrication Plant
LEU	low enriched uranium
MARiS	Marine Radioactivity Information System
MCIF	Major Capital Investment Fund
MCIP	Major Capital Investment Plan
MORC	material out of regulatory control
MSSP	Member State Support Programme
NAEL	IAEA Environmental Laboratories
NDA	non-destructive assay
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
NSIL	Nuclear Science and Instrumentation Laboratory
NSP	Nuclear Security Plan
NSS	IAEA Nuclear Security Series
NSSC	Nuclear Security Support Centre
NWAL	Network of Analytical Laboratories
OA-ICC	IAEA Ocean Acidification International Coordination Centre
OECD	Organisation for Economic Co-operation and Development
OMARR	Operation and Maintenance Assessment for Research Reactors

OSART	Operational Safety Review Team
PACT	Programme of Action for Cancer Therapy
PET	positron emission tomography
PET/CT	positron emission tomography-computed tomography
PMO	Policy-Making Organs
PPE	personal protective equipment
QTC	Qualified Technical Centres
R&D	research and development
RADSED	Enhancing Radiation Safety through Efficient and Modern Dosimetry
RC	Research Contract
ReNuAL	Renovation of the Nuclear Applications Laboratories
RIPL	Reference Input Parameter Library
RR	research reactor
RWM	radioactive waste management
SAGNA	Standing Advisory Group on Nuclear Applications
SAGSI	Standing Advisory Group on Safeguards Implementation
SALTO	Safety Aspects of Long Term Operation
SDG	Sustainable Development Goals
SEED	Site and External Events Design
SER	State evaluation report
SGOA	Safeguards Division of Operations A
SGOB	Safeguards Division of Operations B
SGOC	Safeguards Division of Operations C
SIT	sterile insect technique
SLA	State-Level safeguards approach
SMR	small and medium sized or modular reactors
SSAC	State system of accounting for and control of nuclear material
SSG	Specific Safety Guide
STEP	Sandwich Training Educational Programme
TACC	Technical Assistance and Cooperation Committee
TC	Department of Technical Cooperation
TCF	Technical Cooperation Fund
TCP	technical cooperation programme
TECDOC	IAEA Technical Document
ThDEPO	World Thorium Deposits and Resources
TSR	Technical Safety Review
UDEPO	World Distribution of Uranium Deposits
UN	United Nations
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization

UPSAT	Uranium Production Site Appraisal Team
US	United States of America
VIC	Vienna International Centre
VOA	voluntary offer agreement
WASSC	Waste Safety Standards Committee
WCF	Working Capital Fund
WCR	water cooled reactor
3E	Energy Economy Environment

Annex 2. Organizational Chart
(as of 1 February 2021)



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